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UNITED STATES DEPARTMENT
OF COMMERCE

HENRY A. WALLACE, *Secretary*

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CHEMICALS AND ALLIED PRODUCTS

Dyes

PB 6686. LIVINGSTON, J. W. Wolfen works - I. G. Farben 10 miles south of Halle, Germany. (CIOS File XXVIII-26, Item 22) June 1945. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00
This dyestuff plant produces 10,000 tons of chlorine per year. Billiter cells are used. The plant also produces about 9,000 tons of Sulfur black and 2,000 tons of Direct blacks. Chrome black, Metachrome colors, Oil colors, etc. per year. One of the new products is a plasticiser produced from the hydrogenation to saturation of an oil fraction from the Fischer-Tropsch synthesis which is then treated with sulfur dioxide and chlorine in the presence of ultra violet light according to the Reid reaction. This product used as a polyvinylchloride plasticetor, is said to have a better cold test than tricresylphosphate. Preparation is given for nitrochlorobenzene, paranitraniline, hydroquinone and chlorobenzene.

Agricultural Chemicals

PB 15635. BRESCIA, FRANK and WILSON, IRWIN. Reports on the use in the South Pacific of the Navy screening smoke generator (M374) converted to an insecticidal aerosol generator according to the Hochberg-Lamer principle: Period covered. October 12, 1944 to April 27, 1945. (OSRD Rept 5730 Insect Control Committee 121) May 1945. 72 p. Price: Microfilm - $1.00 - Photostat - $5.00
Contents: Project 1. Aerosol generator as used for routine blanket larvicidal treatment of large areas; project 2. Aerosol generator as used for sand fly control; project 3. The treatment of native villages with the Hochberg-Lamer aerosol generator for adult mosquito and fly control; project 4. The Hochberg-Lamer insecticidal aerosol generator converted from Navy model 374 Besler fog generator; these projects are reported by the authors listed and in the second project by George E. Bohart in addition. The Navy 374 generator, when converted, was satisfactory in operation, rugged and easily operable by unskilled men. The conditions for obtaining mosquito control should be noted. Tables, graphs, photographs and map are included. This is a progress report under contract with Columbia University.

PB 15636. HODGES, KENNETH C. and ROWELL, JOHN C. Test of large area mosquito control using the inventors' model of the Hochberg-Lamer aerosol generator in Lodge Village, Georgetown, B.G. on April 12, 1945. (OSRD 5310 Insect Control Committee 96) Jul 1945. 13 p.
Price: Microfilm - 50¢ - Photostat - $1.00
Results showed (a) 100% kill of Anopheles darlingi larvae in pans at a distance of 8,000 ft. downwind, (b) the complete kill of caged adults in the houses of Lodge Village and to a distance of 2,500 ft. downwind. Meteorological and terrain conditions were favorable for this method of dissemination of DDT. Table and maps are given. This is a progress report under contract with Columbia University.

PB 15638. JOHNSTONE, H. F. and others. The development of an aerosol generator for dispersing DDT solutions from the exhaust of an aircraft engine: Progress rept to June 1, 1945. (OSRD Rept 5309. Insect Control Committee 95) Jul 1945. 70 p. Price: Microfilm - $1.00 - Photostat - $5.00
This method of dissemination produces particles small enough to be quite persistent as aerosols and yet large enough so that they may be forced below the canopy on jungle terrain. The device has been tested under a variety of meteorological conditions. Treatment of jungle test areas with 0.4 lbs. of DDT per acre reduced mosquitoes 10%. Tables, diagrams, graphs and photographs are given. This is a progress report under contract with the University of Illinois.

PB 15619. LA MER, VICTOR K. and others. Conversion of Besler #374 screening-smoke generator to a Hochberg-La Mer aerosol generator for insecticidal purposes, with Supplement on Conversion of Besler M-2 generator. (OSRD Rept 4894. OSRD Insect Control Committee Rept. 53) Apr 1945. 36 p. Price: Microfilm - 50¢ - Photostat - $3.00
Description is given of the following changes involved in the conversion: (1) An increase in power requirements rendering the substitution of a more powerful engine advisable; (2) revision of pumping system in view of higher pressures and lower viscosities of material pumped and consequently higher pump output; (3) addition of emulsion flow control mechanism. Relative requirements of the two generators are given. Diagrams and tables are included. This is a progress report under contract with Columbia University.

Paints, Varnishes and Lacquers

PB 16602. JUKKOLA, E. E. Color stability of olive drab infrared reflecting camouflage finishes. (AAF Eng. Div. Memo Rept ENG-56-M4569) May 1944. 8 p.
Price: Microfilm-50¢ - Photostat-$1.00
This report presents a study of the effect of pigmentation in olive drab infrared camouflage finishes on color stability, as evidenced by weather exposure and laboratory accelerated exposure tests. Samples of camouflage paint materials (lacquers, dopes, and enamels) formulated to meet infrared reflectance requirements were tested. Exposure tests indicate that changes in formulation necessary to meet infrared reflectance requirements have led to the use of some pigments with poor color stability. In general olive drab colors containing organic pigments had inferior color retention properties as compared with those containing inorganic pigments. Color stability can generally be predicted by accelerated exposure tests conducted in the laboratory. Infrared reflectance of the pigment does not change to any great extent even though there is a visual color change. Appendix 1, giving results of individual tests, is missing from this copy. Appendix 2 tabulates reflectance values of finishes before and after exposure. A list is given of the materials tested.

PB 16771. JUKKOLA, E. E. Paint for bullet tipping for scoring purposes. (AAF ENG DIV. ENG -56 -M - 4601) Mar 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Fifty-five samples were tested of paints suitable for coloring the ends of ammunition for scoring purposes. Wax base marking materials, as used for marking pencils, lithographic ink with beeswax, and Ceresin wax and others in various combinations were used with various solvents. Appendix gives a chart of the results of the tests on bullet tipping paints. A wax base material similar to that used in china marking pencils was best. Specification for bullet tipping paint was prepared but is not included in this report.

PB 16772. JUKKOLA, E. E. Paint materials for camouflage jetness of blacks. (AAF ENG DIV. TSEAL - 4 - M4338, Rept 1.) Nov 1944. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
Lack of jetness in non-specular black camouflage dope, lacquer and enamel samples showed in fading under exposure and in the searchlight test. Carbon black, drop black and Chinese blue showed better characteristics. Reflectance curves, and spectral reflectance curves, obtained with a General Electric Recording Spectrophotometer are given in the appendix. Carbon black has been specified for pigmentation in all specifications. Durability test results are tabulated in an appendix.

PB 16779. PERRY, L. Paint removal and re-camouflaging three airplanes. (AAF Rept. Eng. Sect. M - 56 - 4333) Oct 1942. 10 p. Price: Microfilm-50¢ - Photostat-$1.00.
Trip to Langley to supervise the camouflaging of 3 airplanes detailed from sea search duty. Qualities of an improved paint remover and techniques of paint removal are given. Material, labor and weight data for paint removal and recamouflaging of 3 airplanes are given in Appendix I.

Ordnance Chemicals

PB 17112. GRAHAM, M. M. Portable chemical cylinder, CC filled, with electric firing nozzle, M10. (CWS. Tech Div Memo Rept 876). Aug 19, 1944. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
Surveillance tests of cylinders filled with CC (cyanogen chloride) which had been kept at a temperature of 65°C for 30 days showed that CC is unaffected when stored in clean cylinders. Functioning tests of subject nozzle have shown a high degree of reliability. Tables, diagram and photographs are given.

PB 17114. LOVE, SOLOMON. Surveillance of bleaching materials in simulated tropical storage. (CWS Tech Div. Memo Rept 871). Sep 19, 1944. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
The object of the work described was to determine the effects of tropical storage on certain commercial bleaches and specially prepared bleaching materials when packed in small test cups, and to ascertain whether the accelerated heating test is a reliable index of storage life under tropical conditions (in so far as it would or would not approximate the test cup data). Photographs, tables and graphs are given.

PB 15641. FRASE, ROBERT H. Gel-type hopcalite and some granular reagents for carbon monoxide: Progress rept December 31, 1944. (OSRD Rept. 4895). Apr 1945. 28p. Price: Microfilm-50¢ - Photostat-$2.00
The preparation of gel-type manganese dioxide and hopcalite from either $NaMnO_4$ or $KMnO_4$ for catalyst use in a gas mask is described. Tube-test data, and determinations of water content, of available oxygen and of surface area are given. The effects of thermal activation in dry air and under high vacuum are detailed. A brief account is given of experiments on silver peroxide and silver permanganate granules. This includes comparative canister tests on the latter. Bibliography and tables are given. This is a progress report under contract with Princeton University.

PB 12860. SWANSON, A. A. and SAGER, D. D. Supplementary report on German powder and explosives plants. (CIOS. Ordnance Target Rept 168) n.d. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
A supplementary investigation of the following plants was conducted: 1. Fabrik Aschan der G.m.b.H. zur Verwertung chemischer Erzeugnisse; 2. Werk Kraiburg, Deutsche Sprengchemie; 3. Aschaffenburger Zellstoffwerke A.G; 4. NIBIA G. m.b.H., Bomlitz; 5. FabrikDuneberg, Dynamit A.G.; 6. Fabrik Krummel, Dynamit A.G. The manufacture of "Nipolit" and of flashless propellant powders is discussed.

PB 15631. WIIG, E. O. and FLAGG, JOHN F. Analyses of base charcoals: Progress rept to June 11, 1943. (OSRD Rept 1780). 6 Sept 1943. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains long-needed data on the ash content of all common charcoals now in use. There is no apparent correlation between either quantity or type of ash and ability to produce satisfactory whetlerite. It is barely possible that a relationship might exist between the metal constituents in a charcoal and the mode of activation which should be employed. Tables are given. This is a progress report under contract with University of Rochester.

Analytical Chemistry

PB 17107. BROWN, R. S. Method of analysis of diphenylamine chlorarsine (DM) preliminary investigation. (CWS. Tech Div Memo Rept 18). 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The object was to develop a dependable method for the analysis of DM for use in plant control and in the purchase of DM on specification. Previous methods are cited; details are given for a method depending on the separation of constituents by the use of solvents. An analysis of the problem and plan of work is given. Tables are included.

PB 17229. FLIKKEMA, DAVID S. A semi-micro modification of the vacuum-distillation and freezing-point method for estimation of H purity. (Chemical Warfare Service. Technical Division Memorandum Report, T.D.M.R. 918). 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Apparatus and technique of vacuum distillation and freezing point determination of mustard gas (H) has been modified so that a 5 to 10 gram sample could be used for the analysis instead of the 100 gram sample required by the present specification method. The semi-micro method would facilitate laboratory studies by permitting the use of smaller amounts of mustard in tests which require knowledge of H remaining after treatment. It would lessen hazard and cut the time expended in distillation and subsequent elimination of still-pot residue. Tables, diagram.

PB 11554. FUHR, I. and KRACKOW, E. H. Median detectable concentrations by odor of vacuum distilled H, thiodiglycol H and steam distilled H. (CWS. T.R.L.R. 28). Apr 1941. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The median detectable concentrations by odor of vacuum distilled H, thiodiglycol H, and steam distilled H (all forms of mustard gas) are shown to be 0.0012, 0.0018, 0.0010 mg./l., respectively. Graphs.

PB 11335. GEER, HARRIET A. and KINGSLEY, PAUL L. Analytical methods for the determination of DDT. (NRC Coordination Center Review 4; Insect Control Committee Rept 59) 1945. 24 p. Price: Microfilm - 50¢ - Photostat - $2.00
Chemical and physical methods which have been used for the determination of DDT are described in this report. Among these are determination by several colorimetric methods; by combustion and subsequent analysis for chlorides; by reduction with metallic sodium and subsequent analysis for chloride; by the Beilstein flame test; by oxidation; by infra-red spectroscopy; by ultraviolet spectroscopy; determination of p, p'-DDT in technical DDT by crystallization from 75% ethanol saturated with p, p'-DDT; determination of p, p'-DDT in technical DDT by the Porton solubility method, and by other methods; and determination of DDT by the X-ray powder diffraction pattern. Bibliography.

PB 16520. HARER, IRVING. Spectrophotometric determination of iron in magnesium alloys. (Army Air Forces. Eng. Div. TSEAL-4-M4720). Sep 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This method is applicable to alloys containing up to 0.05% of iron, and may be used successfully if as much as 0.05 milligrams of copper is present in the solutions analyzed. Accuracy of the method is 0.001% for alloys containing up to 0.020% iron; above 0.020% iron the accuracy is within 10% of the indicated percentage. Procedure, tables and curves relative to the method are included.

PB 6369. MACY, R. and DAWSON, T. P. Instructional gas identification set MI: Part I, Replacement of phosgene by triphosgene, by R. Macy; Part 2, Preparation of triphosgene, by T. P. Dawson. (Edgewood Arsenal. Tech Rept 222). Mar 1936. 56 p. Price: Microfilm-$1.00 - Photostat-$4.00
The object of the work described in this report was to determine the defects in the present phosgene sniff bottle, a component of the instructional gas identification set MI (spec. 97-54-23B, dated June 12, 1935), and to recommend what corrective measure should be taken. Tests showed that sniff bottle containing charcoal and phosgene were unsatisfactory for two main reasons: (1) excessive pressure developed in the bottle, and (2) due to hydrolysis of the phosgene, so much hydrochloric acid was liberated that the odor of the phosgene was masked. Phosgene contained in a small pressure cylinder and liberated through a restricted valve was not considered satisfactory for use in the gas identification set. It was found that triphosgene does not develop excessive pressure when kept in a sniff bottle and that by reaction with the moisture in the air it gives off phosgene uncontaminated with hydrochloric acid. A method was developed for the laboratory preparation of triphosgene which gave an overall yield of about 80% of material of not less than 98% purity.

PB 14492. RICE, LEONARD M. and DANNER, CHARLES E. Methods of analysis of antimony in arsenical liquors. (CWS. Technical Division Memo Report 760). Nov 1943. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report of investigation made to devise an accurate method for the determination of antimony in arsenical liquors, since antimony is an accelerator in the catalyst used in the manufacture of Lewisite.

PB 17113. ROSE, E. L. A method of analysis for small quantities of selenium. (CWS Tech Div Memo Rept 873). Jul 19, 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
A rapid volumetric method, based on the oxidation of selenite to selenate by an excess of potassium periodate and the estimation of the excess by iodide - thiosulfate titration, was developed and shown to be accurate to ±0.5% for the determination of 0.4 to 20.0 mg. of selenium. Complete directions and results obtained with the method are given.

PB 11383. U. S. WAR DEPARTMENT. CHEMICAL WARFARE SERVICE DEVELOPMENT LABORATORY, M.I.T. Instructions for use of kit, agent sampling, M12. (CWS Field Lab Memo 1-2-28). Sep 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Brief description of agent sampling kit and instructions for its use and for the collection and transmittal of samples.

PB 17842. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Methanol-water type, low pressure, hydrogen generator: Final report. Oct 19, 1943. (Rept 773). Oct 1943. 35 p. Price: Microfilm-50¢ - Photostat-$3.00
This report covers the development and testing of a low pressure hydrogen generator of the methanol-water type for use by barrage balloon field organizations located beyond a commercial source of hydrogen supply. The low pressure generator operates at a pressure of 0-10 pounds per square inch; a compressor being used to compress the hydrogen gas to 2.100 pounds per square inch for storage in cylinders. Photographs, GI unit flow sheet and tables are included, but many parts of the report have been deleted.

PB 17207. WITTEN, BENJAMIN and others. Identification of agents containing fluorine. I. Use of plain silica gel tubes. (Chemical Warfare Service. T.D.M.R. 887) 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Description is given of a method based on the identification of hydrogen fluoride in the products of pyrolysis of the agent. Pyrolysis by drawing vapors over hot platinized silica gel is followed by the use of thorium - alizarin and zirconium-alizarin test papers for hydrogen fluoride. Diagrams are included.

Miscellaneous Chemicals

PB 16791. BERLIN. Über die zum aufbau von sensis wichtigsten heterocyclischen verbindungen und deren synthesen. (Important heterocyclic compounds needed to make film sensitizing agents, and their synthesis). 1945. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
This report is a manuscript used for a talk on the above subject, apparently at I.G. at Höchst. Only minute amounts of sensitizing agents are needed; thus 1 kg. is sufficient for 4 million meters of movie film (100 feature pictures). Cost is therefore of no importance. The sensitizing agents may be divided into 3 groups: 1. The carbocyanines, for orthochromatic, black and white film and various special emulsions. 2. the thiocyanocyanines for ponchromatic film and 3. the merocyanines for paper sensitization. Common to all three groups is a 5 membered (or occasionally 6 membered) ring:

where x = O, S, Se, -CH = CH-; =C(CH3)2

Z_1 and/or Z_2 = H, aryl, benzene nucleus, naphthalene nucleus, etc. y = CH_3, generally. Methods for preparation of such materials are discussed. Tables mentioned in the report were not present with the report as received.

PB 9818 GIBBS, H. G. Reclamation of ethylene dichloride and cresylic acid from used carbon removal compounds; June 8, 1945. (AAF TSEAL - 4 - M5147) Jun 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes analyses made on ethylene dichloride and cresylic acid reclaimed from spent carbon removal compounds. Specification limits as established in this report have been recommended as bases for procurement of these recovered ingredients.

PB 6692. REED, FRANK H. and FINGER, G. C. Final report on "Aromatic fluorocarbons" to January 30, 1943. (OSRD Rept 3163). 1943. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
This final report describes the many experiments which were conducted in an attempt to prepare perfluoromesitylene. Directions are included for the preparation of several fluorinated derivatives of aromatic hydrocarbons, some of which contain chlorine atoms as well. Bibliography and tables.

PB 9635. SHERWOOD, T. K. Oxygen production in France. (ALSOS Mission. Intelligence Div Rept 3470). Oct 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report of the capacity for production of oxygen in France. A listing of plant names and locations of the largest oxygen producer S.A. L'Air Liquide, is given, together with figures on oxygen, both gaseous and liquid, and acetylene capacity.

PB 963. UHLE, CHARLES A. W. University of Halle. (Martin Luther University). (CIOS Black List Item, 24 Medical). May 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Research investigations of Professor Adolph Seiser, Institute of Hygiene, and Professor Emil Abderhalden, Institute of Physiological Chemistry, are briefly described in this report which is based on interview with them, May 30, 1945. Abderhalden's work on enzymatic reactions following transfusions is recommended for further detailed investigation. His work on obtaining a nutritive edible protein from spoiled fish also appears to be important. Recent dissertations by students of Seiser and documents removed are listed.

DETERIORATION STUDIES

PB 11975. GRAY, PETER. OSRD report for the month of August 1944. (Tropical Deterioration Administrative Committee, Rept 94) 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of work on fungus growth at the Department of Biology, of the University of Pittsburgh. The material tested was linen bakelite without luge, Polystyrene XX without luge, Givaudan-Delawanna, "Shirlan" compositions, and Keuffel and Esser measuring tapes. The results given in tabular form show the degree of mite creep, fungus creep, adventitious mites and adventitious fungus, the reagent being presumably zinc naphthenate.

PB 11981. GRAY, PETER. OSRD report for month of December 1944. (Tropical Deterioration Administrative Committee Rept 97) 1944. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of work on fungus growth at the University of Pittsburgh, giving results in tabular form of tests on the reagent p-tertiary butyl phenol.

PB 11982. GRAY, PETER. OSRD report for month of January 1945. (Tropical Deterioration Administrative Committee Rept 98) 1945. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of work on fungus growth at the Department of Biology, of the University of Pittsburgh, giving results in tabular form of tests completed during January on p,p' - Isopropylidene Bis-Phenol (reagent), which show fungus creep, mite creep, adventitious mites and adventitious fungus.

PB 11955. JOHNS HOPKINS UNIVERSITY. The effect of moisture and fungus on electrical and mechanical properties of plastic insulating materials: Final report, Oct. 1945. (Tropical Deterioration Administrative Committee Rept 26. OSRD Rept 6324) Oct 1945. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
This is a survey of work being done by various organizations on the above subject. Most of the data is on the effect of moisture on electrical properties. The author first reviews a paper published in 1915 by Dr. H. L. Curtis of the National Bureau of Standards on "Insulating Properties of Solid Dielectrics" which contains valuable information applicable to this study. The report of recent experimental work includes discussions of the effect of exposure to air of high relative humidity, effect of condensation, and effect of immersion in water on (1) insulation resistance and (2) power factor, dielectric constant, and loss factor. There is comparatively little information available regarding the effect of moisture and fungus on mechanical properties of plastics. The survey contains tables and graphs giving the results of the experiments.

PB 11980. LASCHINGER, PEGGY. OSRD report for the month of October, 1944. (Tropical Deterioration Administrative Committee Rept 95) 1944. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Report on work done on fungus growth at the University of Pittsburgh. This report gives results of tests on fiberglas neoprene DG and glass cloth, DC neoprene, using the following as reagents: Nuodex copper, Nuodex R.P. 368, Nuodex R.P. 321 and p-cyclohexylphenol.

PB 11967. SHANOR, LELAND. Handbook of some fungi associated with tropical deterioration. (Tropical Deterioration Administrative Committee Rept 27. OSRD Rept 6267) Oct 1945. 95 p. Price: Microfilm -$1.00 - Photostat-$7.00
This handbook was prepared for the use of Service laboratories engaged in studies on tropical deterioration. The information contained herein is largely available in mycological manuals, mimeographs and textbooks, but the handbook was prepared with a view to assembling pertinent information on selected organisms into a single publication. It includes sections on the morphology, the physiology and the classification of fungi, definitions of technical terms, a key to the fungi included, descriptions and illustrations of species, and selected references. There is also an index.

PB 12047. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. Importance of enzyme production by microorganisms to the problem of tropical deterioration of service materials. (Tropical Deterioration Information Center Rept 72). Jul 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This report has two main parts, the first dealing with the cellulose decomposing activity of isolated enzyme preparations, and the second with the destructive activities of organisms as a result of their normal physiological function. Cellulose decomposing enzymes produced by both bacteria and fungi are considered. A bibliography of the references cited contains 49 items, and 22 additional references are given.

PB 12005. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. Project AN-14. Sub-committee on Coordination of Test Methods for Tropicalisation of Service Materials. Progress report, Sept. 30, 1944. (Tropical Deterioration Administrative Committee Rept 85). 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Tests were set up in September 1944 to determine the resistance of communication wires and fabrics, which had been tested with various fungicides, to mildew and rot. These experiments are described but all conclusions in the report are tentative since the experiments were still in progress.

PB 13121. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. Project AN-14. Minutes of meeting No. 2, August 18, 19[illegible] 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
At this meeting held in Washington, D. C. the following contracts were approved for recommendation to the National Defense Research Committee:-University of Pennsylvania, tropical deterioration of optical glass, exposure tests on other equipment and coordination of test methods; Harvard University, establishing and maintaining a tropical fungus culture collection; Bakelite Corporation, tropical deterioration of plastics; George Washington University, Information center and surveys in field of tropical deterioration; and University of Pittsburgh, exposure tests of instruments under tropical conditions. Reports on projects and from scientific assistants, and activities of the committee are included.

PB 13122. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. Project AN-14. Tropical Deterioration, Administrative Committee. Minutes of meeting no. 3, September 20, 1944. 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Status of the work under contract was reviewed at this meeting held in Washington, D. C. Data collected by the project on deterioration of optical glass indicated that deterioration was not due to fungus alone, but the amount attributable to these factors was difficult to determine. It was considered that some of the fungicides used caused dimming or corrosion of the glass. A memorandum from Dr. Bush was reviewed. It requested that schedules for the termination of projects be formulated in order that they might be put into effect following the end of the European War. It was decided to fix November 15, as a date on which termination schedules might begin.

PB 13123. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. Project AN-14. Tropical Deterioration Administrative Committee. Minutes of meeting no. 4, October 19, 1944. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Among the matters discussed at this meeting held in Washington D. C. were the importance of making pertinent information known to manufacturers, announcement in professional journals of the nature and scope of the Committee's work, a proposed program for long term packaging tests at Panama, and demobilization plans of OSRD. These minutes also contain progress reports on various projects and a tentative budget for March 1, 1945 to August 1, 1945.

PB 13124. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. Project AN-14. Tropical Deterioration Administrative Committee. Minutes of meeting no. 5, November 15, 1944, Washington, D. C. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Most of these minutes consist of a report by Dr. K. G. Compton on his visit to Panama when he made observations of deterioration caused by fungus growth, etc. on communication equipment, packaging optical instruments, textiles, leather and wires and of a report by Dr. W. O. Hutchinson on the activities of the Science Mission which was there in Panama. Progress reports of the work being done in various Universities under contract are included.

PB 11970. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. Some excerpts about tropical deterioration from recent files of the Office of the Field Service and certain other war agencies. (Tropical Deterioration Administrative Committee Rept 12). Sep 1944. 26 p. Price: Microfilm-50¢ - Photostat-$2.00

this compilation includes excerpts from reports of commanding officers in the Southwest and Central Pacific areas, from Dr. O. R. Harrison of the Office of the Field Service and others, regarding protective packaging problems. These reports indicate that the problem was largely that of keeping stores and equipment dry. Information is included detailing methods for the protection of inorganic materials, such as ordnance and automotive equipment; organic materials, cellulosic and non-cellulosic; and finished assemblies, such as electrical and electronic equipment, optical instruments and watches.

PB 12040. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. United States specifications incorporating fungi test methods. (Tropical Deterioration Information Center Rept 40). Apr 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a compilation of data on fungi test methods found in U. S. Government specifications. The information is arranged in tabular form under the headings: Agency, Symbol, Date, Status, and Title (of specification), Microorganisms required, Nutrient medium required, Pre-treatment of specimens, Incubation, and Means of recording the results. The materials to be tested include textiles, rope fibers, paints and cork. For revision of this report see PB 12044. See also PB 12049.

PB 12049. U. S. NATIONAL DEFENSE RESEARCH COMMITTEE. United States specifications relating to tropical deterioration. (Tropical Deterioration Information Center Rept 20). Nov 1944. 72 p. Price: Microfilm-$1.00 - Photostat-$5.00
The information contained in this report is in tabular form and is arranged under the headings: Agency Symbol, Date, Status, Title, Materials to be Protected, Preservatives, and Tests Mentioned. The specifications are arranged in groups as follows: Cordage and fiber, electrical equipment, leather, metal, optical instruments, packaging and storage, paint, paper, plastics, rubber, textiles, wood and miscellaneous. See also PB 12040 and PB 12044.

PB 11972. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. Work on Contract OEMsr 205 on coordination of test methods in cooperation with Sub-Committee on Coordination of Test Methods: Progress Report, Dec 1944. (Tropical Deterioration Administrative Committee Rept 83) Dec 1944 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Relative to the proposed test method to determine whether hookup wires are proofed against attack by microorganisms which cause deterioration, the following points were examined: I. Reproducibility of the method; II. Possible modifications of the method (suspensions of spores vs spore dust and variations of the species of fungi used for tests). A criticism was made of the proposed method because too little was known of the nutrients in the spore suspension at the time of inoculation. This criticism is answered. The report also includes information on the problems of testing methods for lacquers and varnishes. Results of tests on samples of plastics showing degree of resistance to fungus growth are given in tabular form.

PB 11969. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. TROPICAL DETERIORATION ADMINISTRATIVE COMMITTEE. Summary progress report, June 1945. (Tropical Deterioration Administration Committee Rept 3) Jun 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Contains summaries of the progress reports sent in by subcommittees and contractors covering their work for June 1945. Included is information on the George Washington University Information Center: tests on sealing compounds at the University of Pennsylvania; the work of the tropical exposure station at Barro Colorado Island, Panama; tests on varnish at Boyce Thompson Institute, Bakelite Corp; maintenance of tropical fungus culture collections at Harvard University; and the susceptibility of resins, plasticizers and mixtures thereof to fungus attack.

PB 11971. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. TROPICAL DETERIORATION ADMINISTRATIVE COMMITTEE. Summary progress report - month of August 1945. (Tropical Deterioration Administrative Committee Rept 14) Aug. 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Contains summaries of progress reports received from subcommittees and contractors for August 1945. This is the last monthly summary report issued since the work of the Tropical Deterioration Administrative Committee was being completed. The report includes information in the following contracts: George Washington University, Information Center; University of Pennsylvania, tests on processed film, binoculars, fruit bars, etc.; Bakelite Corporation - Boyce Thompson Institute, tests on fungicides; Harvard University, tropical fungus culture collection; Rensselaer Polytechnic Institute, effect of moisture and fungus on insulation resistance of hook-up wires; and Johns Hopkins University, effect of moisture and fungus on insulation resistance of plastics. The report also includes information on the activities of the various subcommittees.

PB 11959. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. TROPICAL DETERIORATION ADMINISTRATIVE COMMITTEE. SUBCOMMITTEE ON COORDINATION OF TEST METHODS. Methods of testing biological deterioration of service materials: Report, Oct 15, 1945. (Tropical Deterioration Administrative Committee Rept 20. OSRD Rept 6056) Oct 1945. 68 p. Price: Microfilm-$1.00 - Photostat-$6.00
This summary of current test methods includes discussion of the nature of service materials, role of microorganisms in deterioration, principles underlying test methods, methods of testing volatile fungicides, laboratory culture methods, etc, and the testing of specific service materials such as cellulose fabrics, paper, wood and plywood, protein materials, lacquers, paints, electrical equipment, plastics, and optical instruments. The appendices include an acceptance method of testing fungus resistance of hookup wires, of coating lacquers and varnishes, and a method for determining the relative fungus resistance of plastic materials. Bibliography included.

PB 11956. U. S. OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT. TROPICAL DETERIORATION ADMINISTRATIVE COMMITTEE. SUBCOMMITTEE ON OPTICAL INSTRUMENTS. Prevention of deterioration of optical instruments in the tropics. (Tropical Deterioration Administrative Committee Rept 21. OSRD Rept 6055) Oct 1945. 61 p. Price: Microfilm-$1.00 - Photostat-$5.00
It was concluded that tropical deterioration is most effectively prevented by adoption of optical instruments specifically designed to resist tropical exposure. The general principles of design include the use of materials not quickly damaged or corroded by moisture, the sealing of instruments with synthetic rubber gaskets or "O" rings under pressure, and the use of cases which can be maintained free from fungus growth. The prevention of tropical deterioration of unsealed instruments requires protection from moisture in shipping and storage, treatment of cases and inner surfaces of instruments with fungicides, coating of metal surfaces with lacquer or rust preventive oil or grease, and the designing of unsealed instruments so that they can be disassembled and reassembled quickly and simply. Three Optical Shop Engineering bulletins, issued by Frankford Arsenal, on the cleaning and repairing of optical instruments are included.

PB 11964. WELLMAN, R. H. and MCCALLAN, S. E. A. Biological factors influencing growth of fungi on plastics: Interim report, July 1945. (Tropical Deterioration Administration Committee Rept 5) Jul 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a progress report of a project undertaken by the Bakelite Corporation under contract with the National Defense Research Committee. In the tests described herein forty different species of fungi and three plastics were used. ("Vinylite VU 1900," "Vinylite VU5904," and the phenol formaldehyde cloth base laminate - "Lamicoid 6030"). In general Vinylite VU 5904 supports the greatest fungus growth of both inoculated and contaminating fungi and VU 1900 the least.

ELECTRICAL MACHINERY, EQUIPMENT, AND SUPPLIES

Communication Equipment

Japanese

PB 14281. HEINZELMAN, G. J. Jamming susceptibility of the Japanese 94 Mark 5 receiver. (NDRC Div 15. Report, 966-46). 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of work done at the Bell Telephone Laboratories on Project NP-109. The Japanese 94 Mark 5 receiver is a portable receiver intended for short range infantry use in conjunction with the 94 Mark 5 transmitter as a fixed station. It employs one stage of tuned radio frequency, a regenerative detector and two stages of audio frequency amplification and covers a frequency range from .4 to 7 mc in 4 bands. This report presents the results of tests made in order to determine the susceptibility of the receiver to jamming when used in an AM radiotelephone link. The jam points for the following types of interference are shown: AM stepped tones; AM random noise; direct amplified random noise; FM random noise; spark; sweeping carrier. Data concerning the operating characteristics of the receiver are included. Graph, block diagram and wiring diagram are included.

German

PB 1218. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Lautsprecher mit Exponentialtrichter (A loud-speaker with an exponential control). German patent application T 61 194 VIII a/21a 2 applied for November 24, 1944 and still pending. Original inventor: Thomson. 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
An improvement on DRP-anmeldung T 59 962 VIII a/21a 2. Not illustrated.

PB 8426. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Sendeeinrichtung für sehr kurze elektromagnetische wellen. (Transmitter for very short electromagnetic waves.) German patent application T52405 VIIIa/21a4, applied for June 22, 1939, but rejected. Original inventors - Sammer and Gollow. 1939. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8422. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Verstärkeranordnung, insbesondere zur leistungsverstärkung für kurze wellen. (Amplifier arrangement, especially for power amplification for short waves.) German patent 739206, applied for June 9, 1939 with number T52369 VIIIa/21a4. Original inventor - Müller. 1939. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00

United States

PB 18099. AIRCRAFT RADIO CORPORATION, Boonton, N. J. Instruction book for Model RAT and Model RAT-1 aircraft radio, telegraph, and telephone receiving equipment. (Navy Dept. NavAer 08-5Q-137). 1939. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
Model RAT (12 v) and Model RAT-1 (24 v) are similar aircraft radio receiving equipments, each consisting of two complete superheterodyne aircraft radio receivers designed for individual or simultaneous operation in the frequency bands of 13.5 to 20 mc and 20 to 27 mc. The equipments may be remotely or locally controlled and will receive either CW or AM signals. The intermediate frequency of all receivers is 4.2 mc. Except for dynamotors, relays, and heater wiring corresponding units of Model RAT and RAT-1 are alike. Instruction book includes schematics, parts lists, and drawings.

PB 15808 BENNETT, GEORGE K. Development of Morse Code actuated printer, report no. 1 (OSRD Report 6233) 1945. 30 p. Price: Microfilm-50¢ - Photostat-$2.0
This report, which serves as the final report for Project NS-366, NDRC Applied Psychology Panel, includes the narrative of the historical development of the Morse Code Printer and the Manual devised to accompany the instrument. This printer was designed to aid in the training of radio code operators in hand sending and to copy International Morse Code signals. The machine makes it possible to copy satisfactorily messages received by a radio when the Morse print was located adjacent to the radio.

PB 15646. CARNEGIE INSTITUTION OF WASHINGTON, DEPARTMENT OF TERRESTRIAL MAGNETISM. Report on College (Alaska) Observatory, March 1941 through June 1942. (OSRD Rept 783) Aug 1942. 31 p. Price: Microfilm-50¢ - Photostat-$3.00
This report presents a summary of the ionospheric work done at the University of Alaska from June 1941 through June 194 It was concluded that any radio transmission which depends upon high-frequency sky-wave propagation in the Territory of Alaska or in other corresponding northern latitudes is certain to be frequently and seriously disturbed because of the great frequency and intensity of severe radio fades, the great frequency and intensity of sporadic E-region ionizat and the large day-to-day variability of transmission conditions. Determination and prediction of maximum usable frequencies and minimum usable frequencies were accomplished by means of a technique developed around standard methods which takes account of both quiet and disturbed conditions. Tables and graphs present data, and photographs of the university of Alaska and equipment are included.

PB 15058 CARROLL, THOMAS J. Complementary diversity reception on microwaves. (Army Signal Corps. Propagation report 2 in connection with Camp Coles Signal Laboratory Engineering Report 84, "Comparative tests of radio relay equipment", Phase I - California: interim report covering tests June to October, 1945). n.d. 40 p. Price: Microfilm-50¢ - Photostat-$3.00
Tests in California during the summer of 1945 of radio relay equipment proved that fading of microwaves due to interference of direct and reflected signals can be best overcome by a system of "complementary diversity reception" in which two receiving paraboloids were spaced vertically a half-lobe apart. The signals in the two antennas were found to be roughly complementary with signal minima from one coinciding with maxima from the other. Also, fading due to ground reflection was largely eliminated by two vertically spaced antennas. It was observed that two antenna reception was much more effective in overcoming deep fades than a 10 db increase of transmitter power. Similar results were received in reception over rough sea surface. The report concludes that complementary diversity reception is much superior at present to an increase of transmitter power on all microwave relay paths over smooth reflecting surfaces.

PB 13885. COLUMBIA UNIVERSITY. DIVISION OF WAR RESEARCH. AIRBORNE INSTRUMENTS LABORATORY. Handbook of instructions: Magnetic tape recorder, serial 4, 5, and 6. (Report 1305-7). 1944. 68 p. Price: Microfilm-$1.00 - Photostat - $5.00
This handbook describes subject tape recorder and discusses installation, operation and maintenance of the unit. There is a table of replaceable parts. Numerous illustrations and diagrams are also included.

PB 14278. CROSBY, MURRAY G. Differentiating and limiting amplifier. (NDRC Div. 15. Report, 895-6). 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report of the RCA Laboratories, of work done at Riverhead, New York, describes the specific circuit of a limiting amplifier which was used in connection with the work of report 895-4 entitled "Readability of FM, AM and Telegraph Systems". The object of this amplifier is to introduce limiting in the modulation circuit of a voice-trans-

mitter so that the higher peaks of the voice wave are clipped off while the lower-level portions are raised to thereby raise the apparent volume level of the voice. In experimental observations with this type of limiter, it was found that the insertion of a differentiating network reduced the amount of distortion produced by a given degree of limiting. This amplifier is limited to a degree of limiting equal to about 20 db. Circuit drawing of the differentiating and limiting amplifier is included in the report.

PB 16896. DAVIS, C. B. Test of radiomarine type RT-6019 200 watt radiotelegraph equipment. (4-22-Mc). (Naval Res Lab Rept R-1758. BuShips Problem T5-4) Jul 1941. 70 p. Price: Microfilm-$1.00 - Photostat-$5.00
Material tested includes the transmitter, control panel, crystal, motor-generator, magnetic controller, and line switch. Operation of this equipment is confined to eight separated bands without overlap. Continuous coverage is not provided. The transmitter may be operated on CW or on MCW. Provision is made for the selection of 10 crystal frequencies, but the transmitter may also be controlled by a master oscillator. The purpose of the tests was to determine the suitability of the equipment for Naval use. Many recommendations are made but appearance and construction of this equipment is considered good. However, it is concluded that this set can not be considered a substitute for standard Navy radio equipment, but may be useful as a special purpose or emergency transmitter, particularly if crystal control is used. Many performance tables and curves are included, as well as photographs of the equipments showing internal appearance. No schematic is included.

PB 14818. ELECTRONIC SPECIALTY CO., LOS ANGELES, CALIF. Operating and maintenance handbook, Ranger model 114-C aircraft receiver-interphone. (U.S. Navy Dept, NAVAER 08-5Q-279.) 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The Ranger 114-C is a six tube super-heterodyne receiver-interphone, designed for operation directly from a 24 volt aircraft battery. Two sets of headphones and two microphones plug into a jack box (Ranger type JB-2) the jack box being connected to the radio with a detachable cable. The interphone is put into operation when the push button on the microphone is pressed. Current actuates the relay, causing the contacts to change from the receiver position to the interphone position. Report contains a parts list and circuit diagram.

PB 16895. GORDON, R. A. and MACGREGOR, J. J. Tests of Model AVR-50 aircraft radio receiving equipment (manufactured by R.C.A. Manufacturing Co., Camden, N. J.). (Naval Res Lab Rept R-1753) Jun 1941. 106 p. Price: Microfilm-$1.50 - Photostat-$8.00
The subject equipment is a six-tube superheterodyne receiver operating in the range 195 to 1600 and 2000 to 9050 Kc in four bands. Tests were performed to determine the extent of its compliance with manufacturers specifications and its suitability for use in the Naval Aircraft Service. Electrical tests of a comprehensive nature are described, and many performance tables and 40 performance curves are included in the report. Many recommendations for change and modification are made but these are not of a basic nature and the equipment is considered suitable for naval use provided changes are made. Photographs are included.

PB 14800. HARVEY-WELLS COMMUNICATIONS, INC., SOUTHBRIDGE, MASS. Instruction manual, model AR-10-A, aircraft receiver. (Navy Dept NAVAER 08-5Q-268.) 1944. 71 p. Price: Microfilm-$1.00 - Photostat-$5.00
The manual is divided into the following sections: General; description of units; installation; description of circuit operation; maintenance; service and alignment instructions; performance measurements; parts lists and supplies illustrated by photographs and diagrams.

PB 14317. HEINZELMAN, G. J., and LINDNER, J. L. Jamming susceptibility of the Japanese Model 99 type Hi 3 radio set. (OSRD Rept, 966-41.) 1944. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This report presents the results of laboratory test made on a captured Japanese Model 99 type Hi 3 airborne radio set in comparison with an American Helliorapters SK28, to determine its susceptability to jamming. AM random noise, AM stepped tones, and unmodulated carrier were used in making the tests.

PB 14169 KEES, H. Preliminary experimental results with the Z-3600 repeater. Harvard Univ. Radio Res Lab Rept 411-107). 1944. 7 p. Price: Microfilm-50¢ Photostat-$1.00
This report describes work on a device designed to retransmit the receiver band of radio signals between 45 and 55 Mc on a new band in the vicinity of 70 Mc. The ARQ-8 transmitter and the APR-4 receiver, with minor modifications, are used for this purpose. Results of preliminary tests indicate that a more or less "tailor-made" installation is required for each particular application of the equipment, due mainly to the large number of spurious responses of the receiver, which become critical because of the necessity of retransmitting the receiver output. In addition to the system tested an alternate system is also proposed. Report includes block diagrams and circuit diagrams.

PB 16899. LEPPERT, R. L. Investigation of resubmitted Model XTBU transmitting equipment. (Naval Res Lab Rept R-1766. BuShips Prob T4-5C) Aug 1941. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
This report describes an investigation carried out to determine the proper tuning procedure to be employed with this equipment. Tests were also conducted to determine the effect of shock, vibration, and inclination upon the resubmitted model. Antenna circuit adjustment instructions are given in an appendix. Performance data of model XTBU under shock and vibration is reported in the text and in tables.

PB 14318. LINDNER, J. L., and HEINZELMAN, G.L. Comparison of several types of microphones in effectiveness tests using PuGe 16 as the victim link. (OSRD Rept, 966-39) 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report presents the results of tests made to determine the influence of various types of microphones on the jamming effectiveness of Jackal type noise. The AM radio link consisted of a PuGe 16 transmitter and receiver operating on 40 mc. The jamming noise consisted of 10 mechanical FM oscillators operated simultaneously and covering the band from 38 to 42 mc at a sweep rate of 200 cps. Tests were made on five different microphones, namely, the U.S. Signal Corps T-17, T-45, T-30-Q, Western Electric 633A, and a captured German throat microphone.

PB 14191. PEARSON, PAUL. APR-2 receiver modifications. (Harvard Univ. Radio Research Lab. Rept 411-132). 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes modifications designed to improve performance of the APR-2 receiver. The modifications consist of the installation of an automatic gain control, the shunting of the lawnmower brushes by a 0.01 mf capacitor, replacing the gas tube bias potentiometer by a fixed voltage divider, and greasing the commutator cam-block to eliminate chattering of commutator switches. Photographs, diagrams, and graphs.

PB 14087 PETTIT, J. M. The D 1600 variable range motor drive for AN/APR-1 receiver. (Harvard Univ. Radio Res Lab. Technical Memorandum 411-TM-15). 1943. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This equipment was developed in order to have available a motor drive with variable range when the need for such equipment should arise. In addition to adjustable frequency range of sweeping, the new design includes a rheostat to control the speed of the motor. Includes a diagram.

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PB 14143. PETTIT, J. M. D1901 modification kit for I-F gain control and A-V-C switch for SCR-587 and ARC-1 receivers. (Harvard Univ Radio Res Lab Tech Memo 411-TM-73) Feb 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Brief installation instructions including schematic are given for the subject modification kit.

PB 14145. PETTIT, J. M. D1903 conversion for operation of ARC-1 receiver from a 28-volt power source. (Harvard Univ Radio Res Lab Tech Memo 411-TM-75) Feb 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This report is a very brief discussion together with a drawing describing the circuit changes necessary to convert an ARC-1 to operate from 28 volts instead of the usual 14 volts.

PB 16860. PRAY, G. E. Report on test of Type RA-46125 experimental models of superfrequency radio receivers for single and double modulation. A part of Model XAP equipment. (Naval Res Lab Rept R-1736) Jun 1941. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
These receivers are superhetrodyne units covering the range 130 to 210 Mc. A laboratory test of electrical performance on single and double modulation was first given after which the two receivers were mounted beside their respective transmitters, one in the laboratory and one in a field test truck, and two-way communication tests conducted over land at distances up to 15 miles. Tests were also conducted on two different types of antennas. Double modulation was found to be practical but no recommendation is made for its use by the Navy. A fixed ground plane antenna was found to give reliable results but further investigation is advised. Fidelity was superior to receivers then in use and general performance is indicated as satisfactory. Performance tables, curves, and photographs of the equipment are included in the report.

PB 14361. SCHEIBE, ELMER H. Investigation of the operating characteristics of radio set SCR-536. (Off Sci Res & Dev Rept 1024-22) Feb 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This set is a small portable press-to-talk radio telephone which provides transmission and reception of amplitude modulated r-f energy on one crystal controlled frequency anywhere in the range 3.6 to 6 Mc. Tests were conducted on two units under identical conditions. Results were generally satisfactory. The overall audio characteristic, including the transmitter, was similar to that of other communication receivers. Selectivity and sensitivity were good and transmitter radiation measurements indicated an unattenuated field at one mile of 41 and 27 microvolts per meter respectively for the units tested. The tests are briefly described and results are given by graphs and in the text.

PB 16901. SCHLESINGER, L. and LEPPERT, M. L. Test of Model XTBT transmitting equipment (manufactured by RCA Manufacturing Co., Camden, N. J.). (Naval Research Lab. Rept. R-1727 BuShips Problem T6-11C). Apr 19, 1941. 197 p. Price: Microfilm-$2.00 - Photostat-$19.00
Model XTBT transmitting equipment consists of a VHF radio transmitter covering the range 60 to 200 Mc with an output varying from 50 to 30 watts from to low to high portions of its frequency range, associated motor generator, antenna, rectifier, transformer, and remote telephone units. This report describes comprehensive electrical and mechanical tests on the preliminary model which were performed to determine whether specifications had been met and to obtain data for recommendations for improvement of the equipments. The authors found that specification had been complied with in the main but noted many minor instances of non-compliance together with recommendations for change. The report describes the test methods and provides extensive tables and graphs showing results. Photographs of all components are included.

PB 15310. SMITH, S. A. and ASHBROOK, F. W. Intermediate frequency amplifier overload characteristics. (Mass Inst of Tech Radiation Lab Rept 1032) Jan.1946. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
This report contains curves which aid in analysing overloading effects within AW 1-F amplifier and which make a comparison of various I-F tubes with regard to overloading. The data for these curves have been made by measuring the pulse gain of a test stage over a wide range of CW voltage increases, and at the point where the pulse gain is zero, the CW output of the test stage is at a maximum. This test procedure and the equipment used is described in detail. A discussion of the apparent cause of complete "collapse" of some tubes is also included along with the description of circuits which seem quite non-collapsible. Block diagrams are also included.

PB 14794. U. S. AIR CORPS. FIELD SERVICE SECTION, Wright Field, Dayton, O. Preliminary handbook of instructions for aircraft interphone equipment (Models 3611, 3612, 3613, 3615, 3616, 3616B, 3617, 3617A, 3618, 3618A, 3619, 3619A, 3620, 3718). Manufactured by Bendix Aviation, Ltd., Burbank, Calif. (Tech Order 08-10-56) Mar 1942. 74 p. Price: Microfilm-$1.00 - Photostat-$5.00
Model 3611 interphone amplifier and associated station boxes provide flexible sytems of interphone equipment for amplified inter-station communication, message distribution, transmitter control, and attention signalling. The applications of the station boxes or control units are dependent upon the facilities desired at the individual positions. The various models of amplifiers, station boxes, control units and transmitter control box, are taken up separately. Photographs, schematic diagrams, phasing instructions outline drawings and parts list are included.

PB 14566. U. S. NATIONAL BUREAU OF STANDARDS. INTER-SERVICE RADIO PROPAGATION LABORATORY. Frequency guide for operating personnel - January through June 1945. (Non-registered Publications Manual NRPM 193.) 1945. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
Contains a series of 42 nomograms prepared for use as a rough guide for radio operators in the choice of suitable frequencies for radio communication over distances up to 2,200 nautical miles for the first six months of 1945. By their use, the operator can determine approximately the best frequency for any given communication and also the approximate upper and lower limits of the band of frequencies in which the communication is possible. The nomograms represent on average of transmission conditions taken over a two-month period and over a latitude range of 10 degrees. For transmission over very long paths, or for other purpose where information of great precision is needed, the methods outlined in the IRPL Radio Propagation Handbook, Part 1, should be used. For this handbook, see PB 14479.

PB 14479. U. S. NATIONAL BUREAU OF STANDARDS. INTER-SERVICE RADIO PROPAGATION LABORATORY. Radio propagation handbook, Par 1. (War Dept Prelim Tech Manual, TM-11-499, 11 Nov 1943.) 1943. 228 p. Price: Microfilm-$2.50 - Photostat-$16.00
The purpose of this handbook is to provide a radio operator or a radio communications officer with a working knowledge of the principles under-lying the propagation of radio waves from a transmitting antenna to a receiving antenna. It also gives an outline of methods for calculating the field intensity to be expected, at any place in the world, produced by a transmitter in any other part of the world, and for evaluating the results in terms of whether the received intensity is great enough to be useful. Sections I and II give a general explanation of radio propagation with principal emphasis on the sky wave. Sections III and IV deal with maximum usable frequencies, field intensity produced by a transmitter, required field intensity, and lowest useful high frequencies together with distance ranges. There are 130 figures, 10 tables, and an index.

PB 15070. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Handbook of maintenance instructions for radio receiving equipment Model AN/APR-1 and Model AN/APR-1. July 15, 1945. (AN-16-30 APR-1-3). 1945. 216 p. Price: Microfilm-$2.50 - Photostat-$15.00

Radio Receiving Equipment AN/APR-1 or AN/SPR-1 is a search receiver designed to measure the frequency of radar or radio signals within its frequency range. It is a superheterodyne type of receiver, complete in itself, but may be used with associated equipment. Radio Receiving Equipment AN/APR-1 (Airborne) and AN/SPR-1 (Shipborne) are identical except for antennae, varying in operation and installation depending upon whether the unit is installed on an aircraft or ship. Photographs of the quipment and its component parts, installation drawings, charts, parts list, and schematic and wiring diagrams are given. Published under joint authority of the United States War and Navy Departments and the Air Council of the United Kingdom.

PB 13089. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Handbook of preliminary instructions for Navy Model RAL-1 aircraft radio equipment. Reprinted Mar. 15, 1945. (NAVAER 08-5Q-245). 1945. 136 p. Price: Microfilm-$1.50 - Photostat-$10.00
The model RAL-1 receiver has a frequency range of 200 to 27,000 KC achieved by the use of three receiver units operating from a 24 volt storage battery charged by an engine-driven generator. The equipment also has three dynamotors, three receiver racks, a junction box, and cables and plugs. Total weight is 77 pounds. This book gives complete instructions for installation, operation, and servicing of the equipment in aircraft. Detailed descriptions of mechanical and electrical factors involved are illustrated by curves, schematic diagrams, drawings, and lists of parts for the component parts as well as the system as a whole.

PB 13081. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Instruction book for type RL-6 interphone equipment. (NavAer 08-5Q-149). 1943. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
RL-6 interphone amplifier, manufactured by the Magnavox Company of Fort Wayne, Indiana, is for use in a plane permitting intercommunication between the members of the crew. All connections are made to the amplifier by means of cable connectors to the wall plugs on the front panel. Either single button carbon or magnetic microphones may be used. The amplifier consists of two tubes, a 12SL7GT (a Hi-Mu twin triode), and a 12A6, the output stage working into an output transformer, having a secondary impedance of 250 ohms. Report includes a description, installation data, operation check, discussion of maintenance and troubles, description of dynamotor, parts list, photographs, schematic and wiring diagrams, and a resistor chart.

PB 13077. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Instruction book for type RL-9 interphone equipment. (NavAer 08-5Q-150). 1942. 56 p. Price: Microfilm-$1.00 - Photostat-$4.00
RL-9 interphone unit manufactured by Air Communications, Inc., of Kansas City, Missouri, is designed for use in a plane having 2 - to 5 - member crew. It permits two-way intercommunication between the crew and interswitching or mixing of the radio equipment on the airplane. Either carbon or magnetic microphones may be used in this system, however, all microphones used on one system must be of the same type. Report contains a description of the units, installation data, operation check, discussion of maintenance and troubles, dynamotor trouble chart, list of parts, photographs of equipment, and schematic and wiring diagrams.

PB 13082. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Instruction book for type RL-24-B interphone equipment. (NavAer 08-5Q-25). 1941. 59 p. Price: Microfilm-$1.00 - Photostat-$4.00
RL-24-B interphone apparatus, manufactured by the Telephonics Corporation of New York, is arranged to furnish an all-purpose intercommunication system for a 9 - to 20 - member crew of a flying boat or a patrol plane. In addition to equipping the plane with a full 2-way intercommunication system, it further permits interswitching and mixing of the radio apparatus on the airplane. It has a high reserve of audio power. The basic voltage of the airplane system must be 24 volt for the use of this equipment. Report contains a description of individual units, discussions on installation, operation, care and maintenance, description of the dynamotor, photographs and diagrams.

PB 14805. U.S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Instruction book for type RL-24C aircraft interphone equipment (Magnavox Co., Fort Wayne, Ind.) (NAVAER-08-5Q-26) 1944. 61 p. Price: Microfilm-$1.00 - Photostat-$5.00
This book describes the RL-24C aircraft interphone system and all its individual units, and contains instructions for its use and maintenance.

PB 13634 U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Instructions covering modification of AM-33/ART radio frequency amplifier. (NAVAER-En-114). Aug. 15, 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Modification procedure to recondition the AM-33/ART radio frequency amplifier so as to provide satisfactory performance and power output over its operating range. A list of parts removed and parts needed for modification is included.

PB 13633 U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Instructions covering modification of AN/APR-5 receiver, with Modification I (dated Dec. 4, 1944). (NAVAER-En-101). Nov. 13, 1944. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Procedure for modifying AN/APR-5 receiver to add panoramic output from the receiver. Diagram of the circuit after modification is appended. Parts to be removed and parts needed for the modification are given. The December 4, 1944 modification adds one more resistor and a plug receptacle to the parts needed list, and adds 2 paragraphs to the installation instructions.

PB 14786. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Model GP-7 aircraft radio transmitting equipment (Westinghouse) (NAVAER-08-5Q-278) 1940. 160 p. Price: Microfilm-$2.00 - Photostat-$11.00
This report gives full physical and electrical description of Model GP-7 aircraft radio transmitting equipment with photos of the apparatus and its parts, and circuit and wiring diagrams. It includes installation and operation instructions, and methods of locating troubles.

PB 13075. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Navy aeronautical specification: Microphones; intercommunication and radio telephone, anti-noise for aircraft. (Aept. T-38e). Jan 1945. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
Microphone assembly which will minimize the transmission of extraneous noises to such a degree that it may be used satisfactorily in open cockpit scouting planes at night. Drawings and curves are appended.

PB 13078. U. S. NAVY DEPARTMENT. BUREAU OF ENGINEERING. Instruction book for Model RU-5 aircraft radio equipment. (NavAer 08-5Q-220). n.d. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
Model RU-5 Receiving Equipment manufactured by Aircraft Radio Corporation, Boonton, N. J., is a complete radio receiving set designed for use on aircraft. It is adapted for installation and operation on airplanes of all types. It may be used to receive modulated, unmounted and damped wave signals in the frequency range 195-13,575 kilocycles. Descriptions with pictures of the component parts, installation, operation and maintenance make up the body of the report. A parts list, circuit, wiring, and cabling diagrams assembly drawings, and photographs are included.

PB 13091. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy models GO-5 and GO-6 aircraft radio telegraph transmitting equipment. (General Electric Co., Schenectady, N. Y.). (NavAer 08-5Q-90). 1941. 120 p. Price: Microfilm-$1.50 - Photostat-$8.00
The transmitter models considered are for use in Navy patrol planes. The total weight is 178 pounds and the equipment consists of one I. F. transmitter, one H. F. transmitter, one rectifier unit, four shock mountings, four cables, and a slip cover. The instruction book gives a detailed descrip-

tion of the component parts, instructions for installation, operation, and maintenance, how to locate and correct troubles appearing in the set, and an appendix giving a listing of parts. There are photographs, drawings, and schematic diagrams of the assembled equipment and of its component parts.

PB 15100. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy model GO-9 aircraft radio transmitting equipment. (Westinghouse Electric & Mfg. Co., Baltimore) (NavAer 08-5Q-19). 1941. 107 p. Price: Microfilm-$1.50 - Photostat-$8.00
This book was compiled to try to answer any question in connection with the installation, efficient operation and servicing of the subject equipment manufactured by Westinghouse Electric Manufacturing Co. The various individual operating and control circuits that are the component parts of the combined circuit are described in detail. Complete circuit diagrams and actual wiring connections of all units as well as schematic diagrams of the component parts are given. The table of contents is as follows: I. Preface. II. Introduction and general description. III. Detailed description. IV. Installation. V. Choice of frequency and method of communication. VI. Operation. VII. Maintenance. VIII. Location of troubles. IX. List of electrical parts by symbol designation, Table I. X. List of electrical parts by Navy type number, Table III. XII. Illustrations. XIII. Vacuum tubes.

PB 15108. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy Model RU-18 and Navy Model RU-19 aircraft radio telegraph and telephone receiving equipments. (NavAer 08-5Q-30). n.d. 96 p. Price: Microfilm-$1.00 - Photostat-$7.00
Model RU-18 is a complete aircraft radio receiving equipment capable for reception of MCW or CW signals in the frequency range of 195-13,575 kilocycles. It is designed for use on airplanes equipped with a 12-15 volt d-c source. Model RU-19 equipment is similar to Model RU-18 except that it is designed for use on airplanes having a 24-30 volt d-c source. The junction boxes and the dynamotor-filter units of the two equipments are the only corresponding items which are not interchangeable. Photographs, schematic diagrams, parts list and installation drawings are included. Equipment manufactured by Western Electric Co., Inc., Chicago, Ill. under contract dated April 21, 1941.

PB 17418. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Preliminary instruction book (To be replaced by Final Book) for Navy model TDH-3 radio telephone and telegraph transmitting equipment. (Manufactured by Collins Radio Co., Cedar Rapids, Ia.) (Includes Addenda, dated 31 May 44). n.d. 240 p. Price: Microfilm-$2.50 - Photostat-$16.00
This instruction book covers the installation, adjustment, operation and maintenance of the Navy Type TDH-3 radio transmitting equipment. This equipment has been designed for applications involving point-to-point communication, aeronautical ground stations and other services requiring operation on a number of readily selected frequency channels. The transmitter is equipped with the Collins Autotune System which permits the selection of any one of eleven pre-tuned frequency channels by the operation of a telephone dial on the transmitter control panel or a dial located on the remote control unit. The equipment has a power output of 3,000 watts at 2,000 to 12,000 kc, and 2,500 watts at 12,000 to 18,100 kc. Appendices contain transmitter data, color codes, parts lists, drawings, diagrams and tables. Some of the illustrations listed are not included in this preliminary manual. Addenda dated May 1944, lists design and parts list changes since original publication was completed.

PB 15063. U. S. WAR and NAVY DEPARTMENTS and AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for AN/ARC-4, AN/ARC-4X, and 233A airborne radio equipments. (CO AN 08-20-6). 1944. 105 p. Price: Microfilm-$1.50 - Photostat-$7.00
The AN/ARC-4 airborne radio equipment is a very high frequency communication unit designed for aircraft use in the 140 - to 144-mc band. It is intended for two-way radio telephone communication between airplanes, and from airplanes to ground stations. It also provides an interphone system for the pilots. The equipment consists of a very high frequency transmitter and a very high frequency receiver mounted on a single chassis. The AN/ARC-4X, and 233A equipments are identical with the AN/ARC-4 except that they are supplied with dual 12/24-volt dynamotors while the AN/ARC-4 has 24 volt dynamotors. Handbook describes installation and adjustment, operation, electrical and mechanical characteristics, and maintenance. There is an extensive table of replaceable parts. Numerous drawings.

PB 14814. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for radio frequency amplifier AM-18/APT (AN 08-30AM-18-2.) 1944. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
This handbook explains installation and adjustment, operation and theory of operation and maintenance of subject amplifiers. Photographs and drawings illustrate the handbook.

PB 14815. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for radio frequency amplifier AM-33/ART. (AN 16-30AM-33-3.) 1945. 48 p. Price: Microfilm-50¢ - Photostat-$3.00
This is an airborne, high-power, wide-band amplifier designed for use with a driving transmitter. The purpose of the amplifier is to amplify the power output of the basic transmitter and to reproduce the signal as faithfully as is practicable. The handbook discusses installation, adjustment, theory of operation, operation, and maintenance. There are photographs and drawings.

PB 14929. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for radio receiving equipments AN/AHN-5 and AN/AHN-5A. (AN08-30AHN5-3). 1944. 103 p. Price: Microfilm-$1.50 - Photostat-$7.00
These receivers are used in aircraft to give vertical guidance to a pilot during landing operations. It is part of an instrument approach system which provides both lateral and vertical guidance and is known as a "glide-path" approach system. A "glide-path" transmitter is located adjacent to the runway and marker beacons give cross-point indications. The handbook gives a description of the receivers and instructions for their installation, operation, and maintenance. A discussion of the theory of operation, a catalog of parts, and supplementary data on the receivers are also included. Tables, drawings, photographs, wiring diagrams, and a glide-path chart elucidate the written information.

PB 15071. U. S. WAR and NAVY DEPARTMENTS and THE AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for radio receiving set AN/AHR-5. (AN 08-30AHR-2). 1944. 76 p. Price: Microfilm-$1.00 - Photostat-$6.00
This is an airborne search receiver intended to locate radio frequency channels of enemy radar and communications equipment operating in the frequency range 27.8 to 143 megacycles. It may be used in conjunction with headphones, oscilloscope, or panoramic representations and has a scanning device. The major units are receiver, rectifier power unit, antenna stub, and mounting bases. The manual gives a general description of the various assemblies and information on installation, adjustment, operation, theory of operation, maintenance, and supplementary data relative to each. There is a parts catalog and illustrations include photographs, drawings, graphs, wiring diagrams, and schematics of the equipment.

PB 14780. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of operating instructions for model AN/CRC-7 VHF sea rescue transmitter-receiver. (AN 16-30CRC7-2) Jun 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00

this device is a crystal-controlled transceiver operating at 140.68 Mc which weighs only 2½ lbs. It is used to provide two-way voice communication between personnel on the surface of the ocean and searching air or surface craft. The equipment is also capable of transmitting an MCW signal which may be keyed at a slow rate. The chassis on which all parts of the transmitter and receiver are mounted is hermetically sealed. The handbook contains a brief description and simple operating instructions. It is illustrated with photographs of the apparatus, an outline drawing, and a schematic wiring diagram. No maintenance instructions are included.

PB 15064 U. S. WAR AND NAVY DEPARTMENTS AND AIR COUNCIL OF THE UNITED KINGDOM. Handbook of operating instructions for radio receiving set AN/ARR-5. (AN 08-30ARR5-3). 1944. 40 p. Price: Microfilm-50¢ - Photostat-$3.00
Radio Receiving Set AN/ARR-5 is an airborne search receiver intended to locate enemy radio frequency channels and communications equipment operating in the frequency range 27.8 to 143 megacycles. It may operate in conjunction with Radar Indicator Assembly AN/APA-6 or AN/APA-11, Panoramic Adapter AN/APA-10, and Photographic Adapter AN/APA-7. Contains instructions for installation, operation, and emergency operation and repair. Illustrated.

PB 15073. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of operating instructions for 233A airborne radio equipment (Navy Dept. NAVAER 05-50-219). n.d. 13 p. Price: Microfilm - 50¢ - Photostat - $1.00
The 233A airborne radio equipment may be operated entirely from the control unit. Each control is marked to indicate its function. When all controls are adjusted in accordance with instructions, equipment is in the receive condition. To transmit, it is necessary to operate either the press-to-talk button on the microphone on the throttle switch. Interphone position permits interphone communication without radio transmission. P-G and P-P switch permits monitoring of signals on plane-to-ground or plane-to-plane frequencies or both. Drawings and diagrams included.

PB 15081 U. S. WAR AND NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Operating manual for ATC airborne radio equipment (BC-2 MCW-CFI unit). 5th edition. (U. S. Navy Department NAVAER 08-5S-293). n. d. 90 p. Price: Microfilm-$1.00 - Photostat-$6.00
The ATC equipment is an 11 channel, quick shift, low and high frequency aircraft radio transmitter and accessories. One channel can be preset anywhere in the range 200 to 1500 kilocycles, and the other 10 channels can be preset anywhere in the range 2000 to 18,100 kilocycles. After channels are preset, any channel can be selected automatically at the transmitter panel or from the pilots control box. The time required to shift frequencies is about 25 seconds at normal voltages and temperatures. The transmitter will operate with CW, MCW, or VOICE emission on any frequency within its range. This manual contains tables for setting transmitter on desired frequency using internal crystal frequency calibrator, directions for maintenance, tuning instructions and diagrams showing installations.

PB 14813. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Preliminary instructions book for AN/AIA-2 interphone and radio system, (AN-08-30AI A2-2). 1944. 35 p. Price: Microfilm-50¢ - Photostat-$2.00
Interphone and radio system AN/AIA-2 consists of four basic units which provide an audio distribution and control system in various installations of standard equipment comprising receivers, transmitters, and an interphone amplifier. The handbook covers installations and adjustment, operation electrical characteristics and maintenance practices. Photographs and diagrams.

PB 15223. WEPPLER, H. E. A summary of the development of Telegraph Terminal TH-3( )/TC (XC-1). (Camp Coles Signal Lab Eng Rept 48) Oct 1944. 17 p.
Price: Microfilm-50¢ - Photostat-$2.00
Subject terminal has been developed for providing teletypewriter communication over VHF radio systems. This single-channel voice-frequency carrier telegraph terminal is unique in that it is particularly suitable for use with push-to-talk radio sets and may be used for network as well as two-station operation. Its performance, as determined by engineering tests, is described. Photograph and block diagram are included.

Electronics

German

PB 14982. CROME, W. Funkstörungen durch elektrische aufladungen von luftfahrzeugen und deren beseitigung. (Interference by electrical charges accumulating in an airplane and their elimination.) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik VDE.) 1939. 7 p.
Price: Microfilm-50¢ - Photostat-$1.00
Electric charges developing in a plane by atmospheric conditions, through its flight in rain and snow, and by the presence of exhaust gases are a frequent cause of interference with the reception of radio signals. The sources of such interference and means for their elimination are discussed in this report. Bibliography. In German.

PB 14477. MALLACH, P. Dielectric directional radiators for decimeter and centimeter waves. 1945. 34 p.
Price: Microfilm - 50¢ - Photostat - $3.00
Discusses dielectric antennas which radiate in the direction of their main axis. The beam width of these antennas is decreased with greater length. They are longitudinal radiators and carry only propagating waves. There are two chief types, rod and tube. To obtain propagating waves along the rod, and to reduce reflection and secondary maxima, the shaft impedance is matched to space impedance by tapering the rod toward its end. The tube gives a somewhat better pattern than the rod because of its greater diameter, which at optimum is around one wave length. Dielectric radiators are used for all wave lengths under 60 cm, but are especially light and convenient for the centimeter and millimeter wave lengths. Contains numerous graphs and diagrams. This is a translation of Chapter 10 of "Ausgewählte fragen über theorie und technik von antennas), a collection of reports given before the Antenna Committee of the Generalbevollmächtigen für technische nachrichtenmittel in March, 1943. Translation was made by Office of the Theater Chief Signal Officer, ETO.

PB 14740. MASING, G., and ERGANG, R. Die Potentialbildung des Aluminiums in wässerigen Elektrolyten. (The building of electricial potential on aluminum in watery electrolytes).(Institut für Allgemeine Metallkunde der Universität Göttingen). (ALSOS Mission, Hoyt File 7-E). 1945. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
This paper presents an effort to explain why aluminum does not develop a potential equilibrium when used as an electrode in a watery electrolyte. Experiments made to this end are fully described and their results tabulated.

PB 16387. ODARENKO, T. M. Report on development work on radar antennae in Germany. (JICA Rept 60) Dec 1945. 93 p. Price: Microfilm-$1.00 - Photostat-$7.00
This report consists of the following: a 14-page review of development work on airborne radar antennae by the author, giving information on antennae obtained by interview with German and British researchers; a 52-page translation of a report by Dr. Kurt Fraas of the German Telefunken Company on the principles of design of directional antennae which includes many graphs and drawings; a photograph, and 27 drawings by Dr. Mallach on dielectric radiators, which are discussed in the text by the author. The author stresses the fact that this is not a comprehensive report but will be supplemented by many others. Some of the drawings will not reproduce clearly.

PB 8434. TELEFUNKEN GESELLSCHAFT FÜR DRHATLOSE TELE-GRAPHIE, M.B.H., BERLIN. Anordnung, bei der innerhalb eines hohlkörpers eine elektromagnetische hohlraumstrahlung vor handen ist. (Arrangement whereby an electromagnetic vacuum radiation is provided inside a hollow body.) German patent 749164, applied for June 30, 1939, with number T52474 VIIIa/21g. Original inventors - Hess and Rahn. 1939. 4p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8455. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., BERLIN. Anordnung zur automatischen peilung. (Arrangement for automatic direction finding.) German patent 734170, applied for July 26, 1939 with number T52608 VIIIa/21a4. Original inventors - Runge, Frmr and Jirsa. 1939. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8441. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., BERLIN. Drahtloser peiler mit rotierendem oder periodisch hin- und hergeschwenktem richtempfange-system. (Wireless direction finder with directional reception system rotating or periodically moving to and fro.) German patent 708119, applied for July 7, 1939, with number T52505 VIIIa/21a4. Original inventors - Roosenstein and Johnske. 1939. 8 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8430. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE, M.B.H., BERLIN. Einrichtung zur drahtlosen verständigung swischen einem schleppflugzeug und einem geschleppten flugzeug. (Device for radio reception between a tow plane and a plane being towed.) German patent 708946, applied for June 24, 1939, with number T52435 VIIIa/21a4. Original inventor - Bergtold. 1939. 7 p. Price: Microfilm - 50¢ - Photostat - $1.00
This patent concerns the towing cable between planes, its insulation and its connection with coupling coil and antenna.

PB 1225. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H. Berlin. Einrichtung zur Raumabtastung nach der Impuls-Rückstrahlmethode. (A device for a spatial-antenna using the impulse return-wave method). German patent application T 61 162 VIIIa/21a 4 applied for November 14, 1944 and still pending. Original inventor: Dr. Gerhard. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Not illustrated.

PB 8445. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE, M.B.H., BERLIN. Einrichtung zur seitenbestimmung bei der peilung. (Device for side determination in direction finding.) German patent 713633, applied for July 11, 1939, with number T-52519 VIIIa/21a4. Original inventors-Hornoff and Stein. 1939. 7 p. Price: Microfilm - 50¢ - Photostat - $1.00
Device for side determination in a directional finder antenna with double circle diagram by the aid of a non-directive antenna whose receiving voltage is rotated by means of an ohmic resistance in phase.

PB 1227. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., Berlin. Elektrisches Filter, welches einen glockenförmigen Ausgangsimpuls liefert. (An electric filter which produces a bell-shaped emission impulse). German patent application T 61175 VIIIc/21 g applied for November 14, 1944 and still pending. Original inventors: Dr. Dennelmeier, Dr. v. Beeyer, Böhrmund. 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
No illustrations.

PB 1219. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Elektrodynamischer trichterlantsprecher mit drucktransformationsraum. (Electrodynamic horn-type loud speaker with a pressure transformer space.) German Patent Application T61170 VIII A/2142 applied for Nov 17, 1944 and still pending. Original inventor: Thomson. 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00

PB 1212. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., BERLIN. Elektrostatische Ablenkeinrichtung für Kathodenstrahlröhren. (Electrostatic deviation device for cathode ray tubes). German patent application T 61 191 VIIIc/21 g applied for November 24, 1944 and still pending. Original inventor: Kluge. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Not illustrated.

PB 1216. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., BERLIN. Entladungsröhre für sehr kurze Wellen. (Discharge tube for very short waves). German patent application T 61 196 VIIIc/21 g applied for November 24, 1944 and still pending. Original inventor, Dr. Klem. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Not illustrated.

PB 8409. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., BERLIN. Flimmerpeilempfänger. (Flickering direction finder.) German patent application T52283 VIIIa/21a4, applied for May 22, 1939, but rejected. Original inventor - Bergtold. 1939. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8433. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE, M.B.H., BERLIN. Flimmerpeilempfänger für impulsempfang (Flickering direction receiver for impulse reception.) German patent 30/41, applied for June 27, 1939, with number T52451 VIIIa/21a4. Original inventor - Wertl. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8446. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE, M.B.H., BERLIN. Funkfever (Radio beacons). German patent 29/41, applied for July 11, 1939 with number T52520 VIIIa/21a4. Original inventors - Leib, Schlayer, and Kruse. 1939. 8 p. Price: Microfilm - 50¢ - Photostat - $1.00
For addition patent 173/41, see PB 8460; and for a related rejected application, see PB 8453.

PB 8421. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., BERLIN. Goniometer, insbesonders für kurzwellenpeilung. (Goniometer, especially for short wave direction finding.) German patent application T52347 VIIIa 21a4, applied for June 6, 1939, and still pending. Original inventor - Löderitz. 1939. 9 p. Price: Microfilm 50¢ - Photostat - $1.00

PB 8440. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE, M.B.H., BERLIN. Haltearm für elektrische tonabnehmer mit verschiedenen massenträgheitsmomenten, bezogen auf die horizontale und vertikale drehachse. (Supporting arm for electrical sound pick-up with different mass moments of inertia, based on the horizontal and vertical rotating axis. German patent 712757, applied for July 7, 1939, with number T52203 IXa/42g. Original inventors - Severin and Brönnert. 1939. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8420. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELE-GRAPHIE M.B.H., BERLIN. Indirekt geheizte röhre für kurzewellen. (Indirectly heated tubes for short waves.) German patent 749251, applied for June 6, 1939, with number T52345 VIIIc/21g. Original inventor - Möller. 1939. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 14946. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H. Konzentrische Umwegleitung (concentric by-pass conduction.) German patent 729675 applied for Dec 8, 1939 with number T52684 VIII a/2/a4. Original inventor: Schmid. (Rept 5889.) 1939. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
In German.

PB 1206. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., Berlin. Künstlicher belastungwiderstand für hochfrequenzsender. (An ingenious antenna system for a high frequency transmitter). German patent application T 61 208 VIIIa/21a 4 applied for Nov. 28, 1944 and still pending. Original inventor Dr. Prost Buschbeck. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
An elaboration of British patent 491794 and DRP (German Patent) 757468. This is evidently a water-cooled system. The drawings are missing.

PB 8431. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE, M.B.H., BERLIN. Laufzeitspule mit leitungseigenschaften. (Coil with properties of conducting lines.) German patent 733752, applied for June 24, 1939, with number T52435 VIIIa/21a4. Original inventor - Tischer. 1939. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00
Coils for high frequency purposes which are characterized in that the forward and rearward lines are placed by means of two opposite-directional windings of a coil.

PB 8405. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Linearer resonanzverzögerer zur erzeugung kurzer elektrischer wellen. (Linear resonance retarder for generation of short electric waves.) German patent 748821, applied for May 19, 1939, with number T52274 VIIIa/21a4. Original inventor - Hollmann. 1939. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 1211. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Magnetfeldröhre in Verbindung mit einer Hohlrohrleitung. (Magnetic field vacuum tube in combination with a concave tubular transmission line). German patent application T 61 192 VIIIc/21 g applied for November 24, 1944 and still pending. Original inventor: Dr. Fritz. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Not illustrated.

PB 1204. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., Berlin. Nach der Impuls-Rückstrahlmethode arbeitende Einrichtung zur Raumabtastung. (A device for space scanning working on the impulse beam reflection method). German patent application T 61 159 VIIIa/21a 4 applied for November 14, 1944 and still pending. Original inventor: Dr. Gerhard. 1944. 6 p. Price: Microfilm-50¢ - Photostat-$1.00

PB 1209. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Oszillographische Anzeigeeinrichtung für die Flimmerpeilung nach der Impuls-Rückstrahlmethode. (An oscillograph indicator for the vibrating direction-finder according to the impulse reflecting antenna method). German patent application T 61 198 VIIIa/21a 4 applied for November 24, 1944 and still pending. Original inventor: Oberbeck. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Not illustrated.

PB 1208. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Oszillographische Anzeigeeinrichtung für die raumliche Flimmerpeilung. (An oscillograph indicator for the spatial vibrating direction-finder). German patent application T 61 199 VIIIa/21a 4 applied for November 24, 1944, and still pending. Original inventor: Leithauser. 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Illustrations for the above are lacking.

PB 8435. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE, M.B.H., BERLIN. Resonanzsystem für sehr kurz wellen. (Resonance system for very short waves.) German patent 748786, applied for July 5, 1939, with number T52592 VIIIa/21a4. 1939. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 1207. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Rohrstrahler. (Tubular antenna). German patent application T 61 200 VIIIa/21a 4 applied for November 24, 1944 and still pending. Original inventor: Dr. Gerhard. 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
A tubular antenna with a lengthwise slit that varies in its amount of opening to emit an even amount of radiation. Not illustrated.

PB 8435. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE, M.B.H., BERLIN. Schaltungsanordnung zur ankopplung einer anteene an einen empfänger. (Circuit arrangement for coupling an antenna to a receiver.) German patent 732119, applied for July 1, 1939, with number T52475 VIIIa/21a4. Original inventor - Drechsler. 1939. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 1220. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Schleifringschalter (A slip-ring switch). German patent application T61180 VIII a/21 a4 applied for November 17, 1944 and still pending. Original inventor: Roy Siefert. 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
An improvement on German patent (DRP) anmeldung Tb8471 VIII a/21a. No illustrations. Slip rings carrying waves move and contact points remain stationary.

PB 1206. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., Berlin. Schwingkristall, insobesondere Schwingquars mit veränderbarer Resonanzfrequens. (Oscillation crystal, especially an oscillating quartz with a variable resonance frequency) German patent application T 61 207 VIIIa/21a 4 applied for November 28, 1944 and still pending. Original inventor: Schäfer. 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00

PB 8437. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE, M.B.H., BERLIN. Sende-empfangsumschalter. (Commutator for transmission and receiving.) German patent 725430, applied for July 3, 1939, with number T52479 VIIIa/21a4. 1939. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8425. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Spule mit leitungseigenschaften mit gegliittetem wellenwiderstand. (Coil with power properties with evened wave resistance.) German patent 733151, applied for June 19, 1939 with number T52399 VIIIc/21g. Original inventors - von Beeyer, Rosenstein, and Tantzen. 1939. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8436. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Variometer mit eisenkern. (Variometer with iron core.) German patent 743931, applied for July 1, 1939, with number T52476 VIIIa/21a4. Original inventors - Witthöft, Drechsler, and Heinicke. 1939. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 1210. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., Berlin. Verfahren und Anordnung zur Messung des Wellenwiderstandes homogener Leitungen. (Process and arrangement to measure the impedance of homogeneous conductors), German patent application T 61 193 VIII a/21a 2. Applied for November 24, 1944 and still pending. Original inventor: Dr. v. Baeyer. 1944. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
No illustrations.

PB 1222. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Verfahren zur Anzeige des Standortes eines Fahrzeuges in Bezug auf einen vorgegebenen Kartenpunkt. (Procedure for the indication of location of a vehicle in relation to a given point on a map). German patent application T 61 163 VIIIa/21a 4 applied for November 14, 1944 and still pending. 1944. 8 p.
Price: Microfilm-50¢ - Photostat-$1.00
The use of relay stations to set up impulses, measure intervals and coordinate to find the intersecting points thereby determining the sought for point.

PB 8453. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE, M.B.H., BERLIN. Verfahren zur befeverung von grösseren flächengebieten. (Process for the supervision of the larger surface regions.) German patent spolication T52585 VIIIa/21a4, applied for July 22, 1939, but rejected. Original inventors - Kruse and Leib. 1939. 4 p.
Price: Microfilm - 50¢ - Photostat - $1.00
Process for the supervision of air and navigation routes and for the coast supervision by means of radio beacons. For other patents on this subject, see PB 8446 and PB 8460.

PB 1225. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., Berlin. Verfahren zur Rückstrahl-Entfernungsmessung. (A method for the measurement of the return of the reflected impulse). German patent application T 61 161 VIIIa/21a4 applied for November 14, 1944, and still pending. Original inventor: Schuls. 1944. 7 p.
Price: Microfilm-50¢ - Photostat-$1.00
No illustrations.

PB 8407. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., BERLIN. Verzerrerschaltung hoher frequenzkonstanz und reproduzierbarkeit. (Distortion connection of high frequency stability and capable of being reproduced easily.) German patent 727940, applied for May 19, 1939, with number T52271 VIIa/21a4. Original inventors - Bechmann, Herzog and Naumann. 1939. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00
Process for production of harmonics of high frequency stability characterized in that a quartz is used which vibrates in its series resonance.

PB 1230. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE M.B.H., Berlin. Vorrichtung zur spielfreien Übertragung des Drehwertes bei einem Funkmessgerat, dessen Drehstand auf Kugellagern ruht. (Advice for the precise transmission rotation angle of a radio meter, whose turning axis rests on ball-bearings). German patent application T 61 179 VIIIa/21a 4 applied for Nov. 14, 1944 and still pending. Original inventor: Pieroth. 1944. 2 p.
Price: Microfilm-50¢ - Photostat-$1.00
Not illustrated.

PB 8429. TELEFUNKEN GESELLSCHAFT FUR DRAHTLOSE TELEGRAPHIE, M.B.H., BERLIN. Verrichtung zur stromzuführung bzw. -abnahme für selbstinduktionsspulen über einen schleifkontakt, der lafge den windungen verschiebbar ist. (Device for current conduction or collection in self induction coils over a sliding contact, which may be slid lengthwise over the windings) German patent 726344, applied for June 24, 1939, with number T52433 VIIId/2142. Original inventor - Leyn. 1939. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 8428. TELEFUNKEN GESELLSCHAFT FÜR DRAHTLOSE TELEGRAPHIE,M.B.H., BERLIN. Zerhacker eines pendelwechselrichters. (Relay for a current converter - rectifier.) German patent application T52432 VIIIa/21g, applied for June 22, 1939, and still pending. Original inventor - Bern 1939. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00

PB 15055 U. S. WAR DEPARTMENT. European, German, Military vacuum tubes. (ENIS Branch, 849 th Signal Intelligence Report 51). 1944. 61 p. Price: Microfilm $1.00 - Photostat-$5.00
A tube manual designed to provide in complete and compact form data relating to European radio tubes, both military and commercial. It presents tube characteristics, photographs, lease diagrams, lists of equivalent tubes and methods by which these tubes can be identified, and information which will aid in replacement and evaluation.

PB 14978 VIEHMANN, H. Funkenstörung von Luftfahrzeugen (Reichaluftfahrtministerium, Ringbuch für Luftfahrttechnik V D 1). (ALSOS Mission, Klotter File 11 E). 1937 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report deals briefly with interference in the reception of radio signals in aircraft, discusses its various sources and methods of elimination and lessening of the effects of interference. Suggestions and instructions aiming to this end are discussed, listed and explained. Bibliography.

PB 14980 VOLLHARDT, H. Anforderungen an elektrische Geräte im Flugzeug (Reichaluftfahrtministerium, Ringbuch der Luftfahrttechnik V D 3). (Requirements put on electrical installations in aircraft) (ALSOS Mission, Klotter File 11 1937. 10 p. Price: Microfilm-50¢ - Photostat-$1.0
Electrical machinery is of increasing importance in aircraft equipment. This report deals with such equipment as generators, batteries, board instruments, elements of power transmission and power installations. Requirements are divided into mechanical and electrical. Methods of shielding board instruments and other methods of protection against interference are briefly discussed. Bibliography.

Japanese

PB 14300. HEINZELMAN, G. J., and LINDEER, J. L. Jamming susceptibility of the Japanese meteorological receiving set No. 776. (OSRD Report, 966-42). 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This report outlines the results of laboratory tests made to determine the jamming susceptibility of a Japanese receiver designated by the Japanese as "Meteorological Receiving Set" - presumably intended for use at weather stations for reception of transmissions from Japanese radiosondes. It is capable of voice or CW reception over a band of frequencies from 37.5 to 150 kc and from 545 to 15,000 kc.

United States

PB 14336. ALBERSHEIM, W. J., and MERRIAM, F. F. Improved jamming action of multiple pad (AN/ART-2) transmitter (OSRD Report, 940-16) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
On theoretical grounds it was predicted that two or more Pads (AN/ART-2), even with some spacing between their sub-band frequencies, would jam Japanese walkie-talkies at much greater distances than a single Pad. The conclusion is borne out by laboratory measurements and by Navy test flights

PB 14166. ALFORD, ANDREW W. Antennas for R.C.M. (Harvard Univ. Radio Research Lab. Rept 411-100). 1944. 238 p. Price: Microfilm - $2.50 - Photostat - $16.00
The purpose of this report is to summarize the R.C.M. antennas as of the date of the report. It contains a collection of abbreviated reports on various antennas in the form of dimensions, radiation patterns and standing wave graphs, together with a brief description, installation notes and photographs.

PB 14182. ALFORD, A. and CLARKE, I. G. Semi-empirical relations between the gain, aperture, beam width and shape of high gain antennas. (Harvard Univ. Radio Research Lab. Rept 411-119) 1944. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
Five semi-empirical formulas are offered in this report, which should allow quick estimates of antenna gain, beam width, and gain as a function of beam width. These formulas apply to complete antennas with feeders and other details in place. In each case the constants have been adjusted to fit the average of well designed high-gain antennas of various types.

PB 13976. ANDERSON, H. E. Flight tests of APR-2 Autosearch receivers at Florosa Field test station. (Harvard University. Radio Research Laboratory. Test Report 411-TR-45). 1944. 29 p. Price: Microfilm - 50¢ - Photostat - $2.00
The APR-2 Autosearch receiver was designed to scan the frequency spectrum from 90 to 1,000 megacycles and to provide a visual and recorded presentation of radar and other signals. Flight tests were conducted to determine: (1) limitations of the Galvin production model, (2) improvements and limitations of a modified production model, and (3) advantages and usefulness of modified model as a search receiver. The AS-37/APR stub antenna for the low frequency channel was mounted on the port side of the B-17, and the AS-29/APR cone for the high frequency channel was mounted on the starboard side. Both antennas were mounted perpendicular to the skin of the ship and were located approximately midway between the tail and the radio room so that each are projected 45 degrees down from the horizontal. The Galvin production model was flight tested against six radar sets ranging in frequencies from 103 to 567 megacycles. The maximum distances at which signals were recorded and observed ranged from forty miles against the SCR-268 to one hundred five miles against the SCR-545 Simulated Giant Wuerzburg. Recorded presentation on the modified set was far superior to that on the Galvin production model. Photographs, wiring diagrams, tables and graphs of performance are included.

PB 14126. ANGER, H. O. Plug-in A/J high-pass filter. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-56.) 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This memorandum deals with the E-510 Plug-in A/J high-pass filter which has been developed to be immediately applicable to the Navy Mark III, Mark IV, and Army SCR-296 radars. The idea, with minor variations of form, could be applied to other systems on which a high-pass video filter is of value. The unit is effective against light CW and low-frequency modulated CW jamming. Photographs and diagrams. A list of Radio Research Laboratory reports is appended.

PB 13771. AHON, WALTER. Waveguide motional joints. (Mass. Institute of Technology. Radiation Laboratory Report 1037). 1946. 24 p. Price: Microfilm - 50¢ - Photostat - $2.00
The report presents design data and electrical characteristics of motional joints in waveguide, together with design of an anti-resonance device consisting of plugs to be inserted into the choke ditches to eliminate resonances occurring in these joints. The joints described allow a limited motion between two sections of waveguide. Swivel joints allow a limited rotation about the longitudinal axis of the waveguide. Hinge joints allow a limited rotation about perpendicular to the sides of the waveguide. Universal joints allow motion of the waveguide within a cone-shaped region. Alignment joints allow limited motion of any type. Some of the designs given are for joints which have not been perfected. This is done to show designs which may be better than those already completely developed. Voltage standing wave ratios are given and are satisfactory for the completely developed joints. Expected losses are given and are not excessive. The power at which breakdown occurs (or the highest level of power attained if no breakdown occurred) are given for completed joints. These are satisfactory for present generally used power levels. Graphs and diagrams make up the larger part of the report.

PB 14314. BABCOCK, W. C. The average characteristic impedance of multiwire cylindrical cage dipoles. (NDRC Div 15, Prelim Rept 8.) 1943. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
This report gives approximate formulas for the average characteristic impedance K_0 of multiwire cylindrical cage dipoles. Such dipoles will be assumed to be composed of two like cages, each cage consisting of n parallel cylindrical wires of length l and radius "a", the n wires being equispaced along the circumference of a circle of diameter "d". The spacing s between adjacent wires is always sad $\sin \pi/n$. The diameter of an infinitely thin sheet of metal wrapped around the dipole will be designated as 2p where $p = d + 2a$. Tables and graphs included. Study by Bell Telephone Laboratories, Incorpated, N.Y.

PB 14284. BABCOCK, W. C. The input impedance of hollow cylindrical dipoles: Preliminary report. (Bell Telephone Laboratories Proposal 15004. OSRD Report 966-15). 1943. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This report presents drawings which show the computed values of the input impedance of hollow cylindrical dipoles. The computations are based on formulas developed by Dr. S. A. Schelkunoff and presented in R.R.L. Reports No. 34 of Project MJ 2100, April 21, 1943, and No. 18 of Project J400, March 20, 1943. Charts are shown for dipoles having the following values of average characteristic impedance (K_0): 250, 300, 400, 500 and 600 ohms. For comparison, charts have been prepared for a conical dipole whose central angle is 60 degrees and whose characteristic impedance is 158 ohms.

PB 14320. BABCOCK, W. C., and others. The Stingerse Antenna. (OSRD Rept, 966-38.) 1944. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
This report describes the Stingerse antenna which is a relatively broad band coaxially fed half-wave dipole suitable for trailing from a plane. The coaxial feeder serves as the towing line. The antenna consists of two hollow radiators, each approximately one inch in diameter and about $\lambda/4$ in length, with the coaxial feeder passing through one of them in order to reach the center of the dipole. Photographs, drawings and radiation pattern sketches are included in the report.

PB 15311. BAKKER, C. B. and RIBLET, H. Reflections from curved surfaces. (Mass Inst. of Tech Radiation Lab Rept 976). Feb 1946. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
A formula is developed for the ratio of the energy reflected from a curved surface to the energy incident upon the surface. This formula is completely general, holding for any angle of incidence, for any doubly curved convex surface, and for the source a finite distance from the surface. It reduces to all of the known special results for particular surfaces. Patterns, computed by use of the formula, are compared with experimental results. Three graphs are appended.

PB 14435. BARKOSKY, E. and MIXEN, C. Preliminary instruction book for M-3000 direction finding equipment for airborne use. (Supersedes 411-1B-28) (Harvard University Radio Research Lab. Rept 411-1B-28A REL M-3000). 1944. 95 p. Price: Microfilm - $1.00 - Photostat - $7.00

This instruction book discusses the installation, operation, and maintenance of the M-3000 direction finding equipment. This equipment, designed for airborne use, is used to determine the direction of radio and radar signal sources in the frequency range of 250 to 1000 megacycles.

PB 14180. BARRETT, E. Carpet transmitter modification. (Harvard Univ. Radio Research Lab. Rept 411-117). 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes modifications made on Carpet transmitters. The addition of 10 mmf. condensers ground and the dead ends of the grid and plate lines improves the performance between 480 and 630 mc and results in higher power output, greater stability of operation, and the elimination of frequency jumps. This modification allows the equipment to be used as a single-dial spot jammer. Photographs and graphs.

PB 14204. BARRETT, E. and ELLIS, A. Single dial-operation of Carpet I (AN/APT-2). (Harvard Univ. Radio Research Lab. Rept 411-150). 1945. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes a method developed by which the AN/APT-2 (spot jammer) may be used in single dial operation over the frequency range of 450 to 650 mc. This has been made possible by an earlier modification which consisted of the addition of a 10 mmf. condenser from the dead end of each oscillator grid and plate line to ground. Graphs are included.

PB 14325. BENNING, H. H. Anti-jamming effectiveness of vacuum tube limiter. (OSRD. Division of Radio Coordination. Report 966-24). 1943. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
A very brief report on the anti-jamming effectiveness of a clipper-slicer type of limiter as an aid to radiotelegraph reception under high noise conditions. The report indicates that the limiter is effective against man-made noises which are not purely random but have very little effect on random or natural noises. This limiter was constructed and tested at Bell Telephone Laboratories.

PB 14313. BENNING, H. H. and EVANS, W. E. Conversion of GO-9 for RCM purposes. (OSRD Rept, 966-16.) 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the method by which the GO-9 set a relatively high-power Navy aircraft set used in the larger planes and normally intended for CW communications has been modified for spot jamming purposes.

PB 14029. BLOCK, F. and PHILLIPS, M. Reflection of long ropes. (Harvard Univ Radio Res Lab Tech Memo 411-TM-100A) Jun 1944. 9 p. Price: Microfilm-50¢ Photostat-$1.00
A continuation of the treatment of this subject in PB 14028. The case considered here is one in which the wavelength of the incident radiation is comparable with or even small compared to the width of a ribbon-shaped rope. A graph is included.

PB 14173 BOCK, E. L. and NELSON, J. A. Preliminary report of M6300 antennas. (Harvard Univ. Radio Res Lab Rept 411-114). 1944. 22 p. Price: Microfilm-50¢ Photostat-$2.00
The antennas described in this report are shipborne vertically polarized receiving antennas designed for mast mounting. Each has a substantially circular pattern in the horizontal plane over the frequency range from 275 Mc to 325 Mc. Two antennas were developed, one that can be mounted at any point along the mast in case the top of the mast is not available (M 6301), and one that is to be mounted at the top of the mast (M 6302). The M6301 consists of two modified M1201 antennas (dipole and and untuned reflector) and M6302 is a skirted stub. Report includes photographs, drawings, and graphs.

PB 14350 BOGGS, F. W. Development of high power tubes at Westinghouse, Volume II. Development of 10 K.W. magnetrons. (NDRC Division 15, Rept 747-3). n. d. 8 p. Price: Microfilm-$1.00 - Photostat-$5.00
In this volume of the report the development of the 10 K.W. magnetron is described. Part I gives the history of the development and describes the different tubes which were constructed giving the results of the limited number of tests which were made at Westinghouse. Particular attention is paid to the choice of cathode material and to the problem of glow in the output seal. Part II describes the magnet which was used and discusses the different methods of cooling it. Part III gives directions, for constructing Model 34 P, which are designed to assist anyone wishing to construct the tube. Drawings and photographs.

PB 14158. BRILL, E. R. The improvement in minimum detectable signal in noise through the use of the long afterglow CR tube, and through photographic integration. (With a discussion of the resulting increase in maximum range of early warning radar systems.) (Harvard Univ Radio Res Lab Rept 411-84) Feb 1944. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
Photographic integration is found to yield slightly higher gains in minimum detectable signal but the use of that process is less practical than the use of the long-afterglow cathode-ray tube. The latter device when operated by alternately turning the beam on long enough for integration and off long enough for observation, should yield a gain that will amount to an approximately 40% increase in warning time for the most experienced operators. Gain is greatest when targets are in line of sight, and a somewhat smaller increase in warning time may be expected when targets are approaching from below the optical horizon. This report includes an anlytical and theoretical approach to the problem of integration on the A-scope with several suggestions for possible methods of further improvement. Photographs showing the use of the two subject methods of integration are included.

PB 14341. BURROWS, C. R. Efficiency of spark transmitters. (NDRC Div 15 Rept, 940-4). 1943. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
In this document the possibility of generating radio frequency energy for jamming communications directly by means of a spark gap and tuned circuit is discussed and mathematically analyzed. A successful development of this extremely simple method would obviate the use of vacuum tubes and would require a minimum of auxiliary equipment. Circuit arrangement for such apparatus are shown in the appendix.

PB 14348. BUTTNER, H. H. Flight test of Navy type X-DBA radio direction finder on B-24J aircraft. (NDRC Div 15, Rept 936-4). 1945. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
The series of tests described in this report were conducted for the purpose of determining the feasibility of using a type X-DBA Radio Direction Finder on a B-24J bomber. The component parts of the direction finder are given, and results of tests shown in four graphs. Data secured during these tests indicate that less accuracy in the bearing pattern can be expected as the frequency is increased.

PB 14277. CAMPBELL, M. E. and others. Comparison of AM-33 and AM-66 amplifiers. (Bell Telephone Laboratories Project EP-272B. OSRD Report 966-48). 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This report presents the results of flight tests of the AM-33 and AM-66 amplifiers made at Eglin Field, Florida. This comparison was made to show the relative merits of each amplifier with regard to jamming effectiveness against radiotelephone channels and ease of operation. In each case an AN/ARQ-8 was used as the source of jamming signals. The jamming effectiveness of the two amplifiers is related directly to their power outputs. From this standpoint, the AM-66 has a 5 db advantage, as determined by a field test against four enemy communication sets. Tables present data.

PB 14280. CAMPBELL, M. N., and others. Stingeree antenna pattern. (Bell Telephone Laboratories Project NP-410. OSRD Report 966-47). 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report presents Stingeree antenna patterns determined at Eglin Field, Florida, and supplements the information contained in Report 966-36, "The Stingeree Antenna", dated Dec. 9, 1944. Results of tests indicate that the antenna can be satisfacterily towed by aircraft. The vertically poled pattern is reasonably circular when the aircraft is about 10 degrees or less above the horizon. At higher angles the energy is greater in front of the aircraft. The change in length of the tow cable does not materially affect the shape of the radiation pattern.

PB 14088 CARAWAY, J. B. Preliminary specifications for B 2800 high power Dina amplifier. (Harvard Univ. Radio Res Lab Technical Memorandum 411-TM-16). 1943 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The B 2800 is a high power class B radio frequency amplifier designed for use with Mandel RC183 or Dina AE-APT-1. Photographs and list of Radio Research technical memoranda issued to date are appended.

PB 15049 CARMODY, WALTER R. Handbook of instructions for the preparation of maps for the H2X supersonic trainer. (M. I. T. Radiation Lab Rept M-181). 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The H2X supersonic trainer is designed to produce on the PPI of a stationary radar set a pattern identical with that obtained by an airborne H2X radar set in flight. In the supersonic trainer, the H2X transmitting system is replaced by a supersonic system, in which a piezo-electric crystal is used as a transmitter and the surface of the earth is represented by a specially prepared map that is situated at the bottom of a tank and covered with water. Supersonic signals sent out from the crystal are reflected from the surface of the map in a manner analogous to the reflection of radar signals sent out, from an H2X set in an airplane by objects on the surface of the earth. The supersonic map bears the same relation to the radar equipment, when used with the trainer, as the earth bears to the equipment when flown in an airplane. As such, it must be an accurate, small-scale reproduction of the area it is desired to be used for training. A table of receiver "gain" for testing the map, and a list of materials in the map construction kit are given, as well as illustrations.

PB 15043 CARMODY, WALTER R. Handbook of instructions for the preparation of mountain maps for the H2X supersonic trainer. (M. I. T. Radiation Lab Rept M-206). 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions are given for the construction of supersonic maps for the H2X Supersonic Trainer. The maps are prepared in the field on glass plates furnished with the equipment. A map of the region to be covered is traced on the glass plate and a relief map is built up by the application of layers of clay that conform to the successive contours. The rough edges are smoothed out and the various areas are so treated that they will give the desired supersonic return. Photographs illustrate these instructions.

PB 14315. CARTER, P. S. Antennas and cylindrical fuselage. (OSRD Div of Radio Coordination. Rept 895-11.) 1943. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
This report discusses theoretical radiation patterns and characteristics of antennas near a conducting cylinder. Two elementary types of antennas, an electric dipole and a small loop or magnetic dipole, are considered. Theoretical patterns for three directions of antenna axes have been computed for several different circumferences of the cylinder. The mathematical theory is given in the report. Work discussed herein was done at Radio Corporation of America RCA Laboratories, Rocky Point, N.Y. Charts are included.

PB 14306. CARTER, P. S. Circular loop antenna at high frequencies. (OSRD Report, 895-31). 1945. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
To date the theory of the radiation properties of circular loops has been confined to the limiting condition wherein the sizes are small (theoretically infinitesimal) compared to a wavelength. The formulas and curves given here cover loops of any size having the natural approximately sine wave current distribution. There are three major properties of interest; Voltage induced in a receiver loop, the radiation resistance, the field radiated in all directions in space. Curves of induced voltage, and radiation resistance versus loop size are shown. A few patterns showing the distribution of radiation from loops of 1/2 and 1 wavelength circumference are also given. The mathematical theory is outlined. Work done at Rocky Point, N. Y., by Radio Corporation of America.

PB 14316. CARTER, P. S. and WERNER, R.S. Notes on antenna tests at Rocky Point Laboratory. (OSRD Rept 895-10.) 1943. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
A brief report containing information on tests made at the Rocky Point Laboratory by Radio Corporation of America RCA Laboratories on the sleeve antenna, the helical antenna, a dipole in dielectric cylinder, the dielectric cone type antenna, a half folded dipole, a bent half folded dipole, and a quarter wave stub antenna. Report includes 19 pages of graphs and charts.

PB 14368. CLARK, H. K. Supplementary preliminary instruction book for M-6200 (AS-222/APA-17) antenna system. (Harvard Univ Radio Res Lab Rept 411-IB-90 A) 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
Material included in this report is supplementary to that contained in Preliminary Instruction Book for M 6200 (AS-222/APA-17) antenna system (411-IB-90) which is designed for use with the ID-60 or (ID-80A)/APA-17 Amplifier Indicator and the AN/APR-1 or AN/APA-4 Receiver. Sections in this report are more in the nature of errata or addenda, so that subparagraphs numbered in the original report are missing from this report if they lacked errata or there is no supplementary material to present. Photographs of tuning unit and of indicator patterns of various types of received signals obtained with the MS200 antenna spinner are appended.

PB 14265. CLARK, J. L. Supplementary report on low-frequency modification of the rug transmitter (AN/APQ-2). (Harvard Univ. Radio Research Laboratory. Report 411-254). 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a modification of the Rug (AN/APQ-2) transmitter for operation in the 150 mc region. Single dial tuning is accomplished with a power output from 10 to 15 watts. The modification may be made in the field using a few feet of No. 14 or 16 copper wire for material. Photographs are included.

PB 14193. COBINE, J. D. and others. Audio and supersonic noise characteristics of the RCA 884 and 2050 gas tubes (25cps to 100 kc). (Harvard Univ. Radio Research Lab. Rept 411-136). 1944. 15 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report contains data on the audio and supersonic noise characteristics of the 884 and 2050 gas tubes. The noise spectrum of the 884 is fairly uniform from 25 cps to 100 kc. The output of the 2050 is relatively flat from 25 cps to 30 kc. A strong oscillation is present at about 50 kc. Best results are obtained when the control grid is used as anode. Graphs are included.

PB 14004. COBINE, J. D. and others. Low-frequency noise spectrum of the 884 gas triode. (Harvard University. Radio Research Laboratory. Technical Memorandum, 411-TM-116). 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The RCA gas triode can be used without a magnetic field as

a noise source for frequencies below about 100 Kc. A composite spectrum is shown in a graph. This represents the average of the noise spectrum of 15 tubes. The oscillation frequency varies from tube to tube, but is usually above 100 kc. It should be recognized that peaks appearing in a frequency spectrum cannot be removed by clipping with a tube but require some form of filter.

PB 14147. COBINE, J. D. and GALLAGHER, C. J. Noise in gas tubes. (Harvard Univ Radio Res Lab Rept 411-68) Jan 1944. 35 p. Price: Microfilm-50¢ - Photostat-$3.00
In connection with the possible use of gas tubes as noise sources in jamming transmitters, the spectra of the noise output of a number of commercial tubes are given for the frequency range 50 Kc to 9 Mc. A magnetic field has been found in these experiments to suppress the oscillations which are undesirable in a noise source. In addition, the noise level is increased, especially in the high frequency range. Four tubes which show the most promise in the range 50 Kc to 5 Mc are the RCA 884, RCA 2A4G, WL 629, and WE 256A. The RK62, a low power tube, has considerable output up to about 1.5 Mc. The following tubes were investigated but show little promise in the range studied, RCA 991 (glow tube), RCA 2050, KU 610, 6Q6G, WE 323A, and WE 338A. A table is presented comparing some of these tubes with previously used sources. A bibliography, tables, diagrams, and charts are attached to the report.

PB 13911. COHN, S. B. Design information for several U.H.F. filters. (Harvard University. Radio Research Laboratory Rept 28). 1943. 20 p. Price: Microfilm - 50¢ - Photostat - $2.00
This document contains complete design equations and other pertinent information for a number of filters to be used in the ultra-high frequency range. The types included are one low-pass and one high-pass filter, and several band-pass filters. Experimental curves of some of these are given and compared with the theoretically expected results. Diagrams included.

PB 14230. COHN, S. B. Design of simple broad-band waveguide-to-coax junctions. (Harvard Univ., Radio Res Lab Rept 411-186) Jul 1945. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
A waveguide-to-coax junction having a better than 2-to-1 bandwidth with less than 2-to-1 voltage standing-wave ratio was required in the design of microwave filters and receiver transmission system. Several types of junctions satisfying these requirements were designed using simple transmission line theory. One type described has a bandwidth ratio of 2.7 to 1. The design method is presented in this report which includes design drawings and frequency response curves.

PB 14136. COHN, S. B. The R807 low pass filter. (Harvard Univ Radio Res Lab Tech Memo 411-TM-64) Mar 1944. 2 p. Price: Microfilm-40¢ - Photostat-$1.00
A photograph, drawing, and schematic accompany a brief description of the R807 low-pass filter which is intended to be inserted in any 50-ohm coaxial transmission line where it is desired to prevent the transmission of signal frequencies greater than approximately 1200 Mc. Below this frequency signals will be transmitted with no loss.

PB 14154. COWAN, F. P. Synthetic giant Wurzburg. (Harvard Univ. Radio Research Lab. Rept 411-81) 1944. 42 p. Price: Microfilm - 50¢ - Photostat - $3.00
This report describes the coversion of an SCR-545-A Radar to simulate partially the German Giant Wurzburg. The main body of the report is devoted to a description of the new units utilized in the Synthetic Giant Wurzberg and a discussion of the changes made in the 545-A units that are employed. Photographs, diagrams, and graphs are included.

PB 14229. CRAWFORD, F. and PEASE, M. Magnetron modulation by means of a rotating electron cloud. (Harvard Univ Radio Res Lab Rept 411-185) Nov 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The use of a cylindrical diode (with a magnetic field parallel to its axis) in the output coaxial line from a magnetron as a variable- impedance tube for the production of modulation is discussed. The operation depends on the production by the cloud of electrons rotating about the cathode of a region of abnormally low dielectric constant, ϵ. Here $\epsilon = 1 - (NB/15100)^2$ and hence for given wavelength and magnetic field B, ϵ is determined in the annular region around the cathode where the cloud is present. Changes in a voltage applied to the anode simply change the diameter of the electron sheath, and therefore the volume in which ϵ departs from unity, and hence the standing wave conditions in the line. This results in a change of the operating point in the Rieke diagram and hence causes a change of the frequency and amplitude of the magnetron oscillations. Theoretical expressions and graphs are given for the results to be expected at low r-f fields. The advantages of this method as normally employed include high impedance and freedom from d-c plate dissipation.

PB 14319. CRAWFORD, R. V. Modifications and performance of R-45/ARR-7 receivers for use in communications ferrets. (OSRD Rept 966-53.) 1945. 55 p. Price: Microfilm-$1.00 - Photostat-$4.00
The body of this report is concerned mainly with performance of the R-45/ARR-7 receivers (.55 to 42 mc in six bands) in the airborne Ferret arrangement. However, the information is of interest not only with the Ferret project, but in any situation requiring the use of more than one R-46/ARR-7 receiver on the same or closely spaced antennas or on a common power supply. The receiver modifications consisted essentially of the changes necessary to: (1) Improve the input impedance so as to avoid mismatch and obtain equal sensitivity on two receivers connected in parallel to a common antenna. (2) Reduce radiation from the heterodyning oscillator. (3) Reduce coupling between receiver via the power supply circuits.

PB 14190. CRAWFORD, F. H. Noise modulation of the ZP 612-6-3 magnetron at power levels near 300 watts. (Harvard Univ. Radio Research Lab. Rept 411-130). 1944. 7 p. Price: Microfilm - 50¢ - Photostat - $1.00
Preliminary studies of the noise modulation of a single tube of the ZP-612 design have been carried out. Observations were taken with plate voltages around 3000 volts and powers near 300 watts at three frequencies in the tuning range of 10.2 to 12.1 cm. The r-f spectra were improved by the use of a high-pass filter in the modulator. A peak-to-peak voltage of 800 to 1100 volts from the modulator produced satisfactory modulated powers as well as band widths. The spectra were rather unsymmetrical, had rather pronounced wings and gave widths at the half-power points of from 15 to 20 mc. Marked decrease in the emmission of the cathode was noted with continued use. Graphs included.

PB 14228. CRAWFORD, F. H. Recent progress in the study of tunable squirrel-cage magnetrons. (Harvard Univ Radio Res Lab Rept 411-184) 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief description of the progress made to date in the interpretation of the data on squirrel-cage magnetrons and an attempt to build up a reasonable theoretical picture of their operation whether cavity tuned or internally tuned.

PB 14021. DAKELL, C. M. and WHITE, M. J. Airborne antennas for AN/APR-1. (Harvard Univ., Radio Res Lab Tech Memo 411-TM-92). Mar 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains information on the M313 stub antenna, the M2101 cone antenna and the M2404 switch used to switch between them. Impedance curves and photographs are given for the antennas and a drawing of the switch is included. Frequency range of the antennas is as follows: stub antenna, 90 to 240 Mc; cone antenna, 300 to 3300 Mc.

PB 14123. DANIELL, C. M. M2201 antenna. (Harvard Univ. Radio Research Lab. Technical Memo. 411-TM-33). Dec 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report presents a description, photographs, and curves of an airborne antenna whose field pattern is such as to maintain a substantially constant ratio between the signal received from a ground station and the signal radiated from the plane toward the ground station. This antenna consists of two crossed dipoles bent down toward the ground screen, has a substantially circularly polarized field and operates in the frecuency range 530 to 580 Mc. It has been tested in the laboratory but not operationally.

PB 15026. DICKENSON, D. J. and GUARRERA, J. J. Maintenance manual for the AN/APN-7 system modified for the S_B BAND. (Mass Institute of Technology. Radiation Lab Rept M-170). 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The AN/APN-7 (BASH) is an airborne radar beacon functioning on the S_A band. As a beacon to function with ground radar systems was needed, a number of these S_A beacons were modified for the S_B band. This modification consisted of withdrawing and replacing the entire RF assembly and antenna. This manual describes the modifications, the newly added components, and the modified tuning procedures. It is intended to be used in conjunction with the standard AN/APN-7 maintenance manual. Photograph.

PB 13251. DILLINGER, J.R. and BOTHWELL, F.E. Division of voltage across series spark gaps in a line type modulator. (MIT Radiation Lab Rept 682-2) Dec 1945. 68 p. Price: Microfilm-$1.00 - Photostat-$6.00
Aluminum cathode type series gaps such as the 1B22, 1B29, 1B31, 1B34, 1B41, 1B45 and 1B49; and iron sponge-mercury type series gaps such as the 1B42 and others still being developed, are enclosed fixed spark gaps designed to be used as the switch in line type modulators designed for peak powers of 200 to 5000 kw at pulse durations of 1/4 to 5 usecs. Common practice is to use 2 or 3 of these gaps in series and to divide the network or switch voltage across them with resistors. The way in which the voltage divides will be affected by the values of the resistors, the pulse repetition frequency, and the values of the trigger coupling condensers. Also, in the operation of 3 gaps in series, it is possible to couple the trigger to the lower or upper intermediate point or to couple it to both points. The voltage division will be different for each of these cases. This report presents theoretical curves and experimental data showing the effects of pulse repetition frequency and values of dividing resistors and coupling condseners on the division of voltage. The purpose of the report is to present information to serve as a basis for the choice of near optimum values for dividing resistors and coupling condensers for any given pulse repetition frequency and for each of four methods of operating series gaps: (I) Three gaps in series with the trigger coupled to the lower intermediate point,(II)to the upper intermediate point, (III) to both points, and (IV) two gaps in series. Five cases are considered under Method III and nine cases under Method IV. The entire report is for D.C. resonance charging of the pulse forming network. Report contains circuit diagrams and data presented in tabular and graphic form.

PB 14422. DORNE, A., and others. Instruction book for M2300 H.F. direction finder for aircraft. (Harvard Univ., Radio Res Lab Rept 411-IB-17.) May 1944. 77 p. Price: Microfilm-$1.00 - Photostat-$6.00
The M-2300 is a Direction Finding System for signals with range from 300 to 900 mc with possible use in the ranges from 250 to 300 mc, and from 900 to 1000 mc. It indicates the direction from which the signal is received and its polarization. The equipment is designed to be used in conjunction with the AN/APR-1 receiving equipment. Sections in this instruction book give information on the description, operating procedure, maintenance and repair, and installation of the M-2300. Photographs, parts lists and a schematic diagram are included.

PB 14312. DOUGLAS, V. A. Preliminary tests on AN/ARQ-2 Jackal. (NDRC Div 15, Prelim Rept, 9.) 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This report gives the results of an effectiveness study on the Wright Field jammer Jackal AN/ARQ-2.

PB 14036. DRISCOLL, CLARK. M-4400 high-gain antenna. (Harvard Univ Radio Res Lab Tech Memo 411-TM-134) Sep 1944. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
This antenna was designed to produce vertically polarized radiation in a fan-shaped pattern about 30 degrees wide (between half power points) in the horizontal plane and 6 degrees wide in the vertical plane over the frequency range 1500 to 3000 Mc. The reflector is fed by an electro-magnetic horn, the axis of which makes an angle of 38 degrees with the vertical. There are 22 graphs and two photographs attached to this brief report.

PB 14086 DYER, JOHN N Methods of selecting and setting the frequency of RC-156 and AN/APQ-9 carpet transmitters. (Harvard Univ. Radio Research Lab. Technical Memorandum 411-TM-14). 1943. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This report discusses the problems encountered in adjusting jamming transmitters to the frequency of radar stations. It compares conditions in the European theatre with a large concentration of enemy radar equipment with conditions in the Pacific theatre when only one or two enemy radar stations might be in operation at any one time.

PB 14324. DZWONCZYK, V. L. Conversion of intermediate frequency unit of GO-9 transmitter for telegraph RCM purposes. (OSRD Report 966-29) 1944. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers information on the modifications required for the conversion of the intermediate frequency section (300 to 600 KC) of the GO-9 transmitter for telegraph RCM purposes. Description, operating procedure, effectiveness test data, charts and diagrams included.

PB 13986. EARLY, H.C. and WELCH, H.W. Self-regulating field excitation for C-W-magnetrons. (Harvard University Radio Research Lab. Rept 411-284). 1945. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
Although it is customary to think of a magnetron as having a fixed, constant magnetic field obtained by means of a permanent magnet or an electro magnet excited by a separate d-c supply, there are many applications where it is advantageous to have a source of field excitation that will change when the voltage on the tube changes. By obtaining the field supply from an electromagnet and by connecting the windings of this magnet to the main power supply in various series and shunt combinations, a great variety of special characteristics can be obtained. This report gives curves illustrating the typical magnetron and curves resulting from changes in anode voltage. Various methods are explained and diagrams illustrate the circuits used with series magnet.

PB 13278 EVERHART, ELIZABETH M. Radome wall reflections at variable angles of incidence. (Radiation Lab Rept 483-20. Radome Bul 20). Jan 1946. 189 p. Price: Microfilm-$2.00 - Photostat-$13.00
Curves for S, X, and K-band single sheet and sandwich wall dimensions at variable angels of incidence are presented for use in streamline radome design and for supplementing the curves of Radome Bulletin No. 8. Methods of calculating these reflection curves for both homogeneous sheets and sandwich curves also are included. Graphs of range of angles of incidence for not more than 10% power reflection from sandwiches as a function of optimum core spacing show that increasing skin thickness or increasing core tolerance generally decreases the range in angles of incidence. Additional curves show the effect of deviation from specifications of

skin or core dielectric constant or skin thickness. Of these factors, increased skin thickness or increased skin dielectric constant impair the radar transmission to the greatest extent. X-band sandwiches with skins or half-wave thickness include curves for ones which give less than 10% power reflection from 0° to 70° for both perpendicular and parallel polarization. A bibliography of 4 items, and 174 pages of graphs are given.

PB 13276 HYGES, LEONARD J. Omnidirectional antennas for BUPX. (Radiation Lab Rept 996) Jan 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes omnidirectional X-band antennas for use with the system BUPX. (Beacon Ultra Portable X band). Two of three designed were for aircraft use. The antennas consist of two radiating sections, one above the other, fed by a double coaxial line. The radiators are probe fed slots cut in 1"O.D. coaxial line. A bibliography of 2 items and photographs, drawings and graphs are appended.

PB 14111. FOSTER, DONALD. Broad-band lobe-switching antenna. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-42.) 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
A broad-band lobe-switching antenna is described which consists of a small horizontal mounted with the open end toward-vertical reflecting plate. The driving point and the characteristic terminal resistance are interchangeable. This allows switching the pattern from one side to the other of a vertical plane normal to the reflecting plate. Satisfactory lobe-switching patterns are obtained for two ranges of the ratio of the length of a side of the to the wave length. These ranges are approximately 0.40 to 0.60 for which the radiation resistance is nearly constant at 90 ohms; and 0.12 to 0.35 in which the radiation resistance is a linear function of the frequency and takes on values from 5 ohms to 72 ohms. Charts and graph.

PB 14096. FOSTER, DONALD. Equivalent point antennas of constant current epoch. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-24.) 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The origins with reference to which the radiation from segments of an antenna is computed may sometimes be chosen so as to simplify the work of calculating the pattern of the whole antenna regarded as an array of point radiators. The most desirable choice of origin is that for which the current phase of the equivalent point radiator is independent of direction. Such points do not always exist. The purpose of this memorandum is to set forth the results of a brief inquiry into how and when an origin may be chosen so as to be specially useful. Simple examples are worked to illustrate the use of equivalent points.

PB 14232. FOSTER, D. Optimum directivity pattern for search antennas. (Harvard Univ Radio Res Lab Rept 411-192) May 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The possibilities and limitations of airborne search antennas are examined here. Design of the antenna will depend on whether a minimum acceptable probability of detection has been chosen since gain is dependent on the directivity of the antenna. Tactical and design considerations affecting the nature of antenna curves are discussed. The report is illustrated with sketches of antenna patterns.

PB 13279 FRANKEL, S. The R-1 and R-2 crystal drivers. (Radiation Lab Rept 645-8) Feb 1945. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
Two chrystal drivers are described for use with a preamplifier converter and piezoelectric crystal in simulating radar echoes in the supersonic trainer. The problem of generation of short duration, high power i-f pulses and the problem of maximum power transfer in the transmit-receive system described, are discussed. Photographs of equipment and circuit, and schematic diagrams are included.

PB 14303. FRANKLIN, R. E. Measurements on 1200 ft. 2250 ft. and 3600 ft. long wave antennas over sandy New Jersey plains soil: Preliminary report. (OSRD Report, No. 27). Aug 1944. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
This document reports the measurements on a wave antenna over sandy soil and compares the results with those of a vertical quarter wave balloon reported antenna. The wave antennas tested were one, two and four wires, 1200 ft. and 2250 ft. long, and one and two wires 3600 ft. long, measurements being done over a frequency range from 200 to 3000 kc.

PB 14094. FUBINI, EUGENE and SUTRO, PETER J. Wide-band transformer from an unbalanced to a balanced line. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-22.) 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The frequency characteristic of a particular type of "bazooka" (a transformer from an unbalanced to a balanced line) is discussed; and it is shown that by inserting a properly designed pair of quarter-wave sections to match the "bazooka" to the balanced line of higher characteristic impedance, the standing wave ratio can be kept below 1.25:1 over frequency bands of the order of four to one. Design parameters are given for the case of 128 ohm and 150 ohm balanced lines, for a 50 ohm unbalanced. Diagram and graphs.

PB 15035. GAMERTSFELDER, F. E. An airborne S-band racon for rooster operation. (Mass Inst of Tech Radiation Lab Rept 554) 1944. 49 p. Price: Microfilm-50¢ - Photostat-$4.00
This report contains a description, technical and military requirements, performance and flight tests and general technical data concerning the AN/APN-6 (BAS), range-coded, airborne, S-band beacon which is designed to be used with any standard airborne radar operating in the S$_A$ band. The function of this beacon is to call friendly aircraft to an enemy objective. Photographs, diagrams, and a list of references are included.

PB 15030. GARFIELD, H. L. BUPX. (AN/UPN-3,4,AN/APN-11) ultra portable X-band radar beacons and their tactical uses. (Mass Inst of Technology. Radiation Lab Rept 710) 1945. 43 p. Price: Microfilm-50¢ - Photostat-$3.00
This report describes BUPX, a series of ultra-portable radar beacons on the X-band. Included in the report are the following: a discussion of some possible tactical uses of BUPX and of field tests of these uses; an account of the successful operational uses of BUPS (S-band beacon); tabular presentations of the chief technical characteristics of the three models of BUPX and of the performance with BUPX of the different radar sets used with each of these models; and a section on the production status of the beacons. Photographs, drawings, and charts are included.

PB 16888. GEORGE, LOUIS L. and GORDON, HOWARD. Airborne television: Results of test of Type CIX-59AAF Conversion Unit, for Models ATJ or ATK television equipment. (Naval Res Lab Rept R-2561) Jul 1945. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
Engineering tests were conducted on type CIX-59AAF conversion unit, manufactured by Remington Rand, Middletown, Connecticut, for use with Models ATJ or ATK airborne television equipment. These tests were made to determine equipment suitability for use in naval aircraft. The test results indicate that the subject conversion unit gives satisfactory performance under all service conditions except that of high temperature with a high relative humidity. Specifications were met on all other tests. Modifications are recommended to correct the above mentioned failure. This report contains performance curves, photographs, and a schematic wiring diagram of the Unit.

PB 10033. ORELARDI, R. P. Results of field tests on AN/UPS-1,-2 (Experimental model of BUPS) at Boca Raton, Florida (January - March, 1944). (Mass Inst of Tech Radiation Lab Rept 591) 1944. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes tests proving that an ultra-portable S-band radar beacon is practical and workable. A reliable range of 35 nautical miles can be expected against S-band airborne radar. Data on ranges at all altitudes, design parameters, and operational behavior are presented. Photographs are included and a correction sheet of four graphs is appended.

PB 15046 GILBERT, C. M. and HAUPT, C. R. A tracking error recorder for the ground controlled trainer. (M. I. T. Radiation Lab Rept 855) n. d. 22 p Price: Microfilm-50¢ - Photostat-$2.00
This report contains a technical description of the functions and use of an electronic tracking error recorder used in the GCA system. The planes position is indicated on six oscilloscopes and, using information from the GCA system, the approach controller directs the plane to the landing strip. Errors are recorded on a recording millimeter and the record used for scoring the operator's ability.

PB 14279. GODLEY, PAUL F., JR. Radio-frequency propagation above the earth's surface. (NDRC Div 15. Report, 89 5-5). 1943. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The curves presented in this report from the RCA Laboratories plotted to give a general picture of radio-wave propagation from aircraft to the ground. Curves are shown giving the field-strength variation from 300 to 40,000-foot altitudes at 3 distances and for a number of frequencies ranging from 0.6 to 600 megacycles. The general characteristics of the propagation are discussed and curves for altitude versus distance at the first maximum are drawn.

PB 12104. GREENE, B. P. Identification of GCA search targets. (Mass Inst of Tech. Radiation Lab. Rept 870.) 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
Ground controlled approach must be able to quickly identify its target aircraft before it will be able to handle large amounts of traffic. At present the only general solution available is co-ordination with radio director finding stations. Other methods such as Window, IFF, beacons, gates, maneuvers, will at present only provide a solution in special cases. A photograph of suggested DF loop, a circuit diagram and a chart of traffic control are appended.

PB 14436. HARBURY, P. L. and DOENZ, A. Instruction book for the A-2608 (AS-125/APR) and the A-2612 (AS-44/APR) cone antennas. (Harvard University. Radio Research Lab. Rept 411-1B-45). 1944. 20 p. Price: Microfilm - 50¢ - Photostat - $2.00
The A2608 and A2612 cone antennas are used for receiving between 1000 and 3500 Mc/s. They can be used for the reception of both horizontally and vertically polarized signals depending upon their installation and may be used aboard either aircraft or surface vessels. They are identical except that the cone of the A2608 is tilted at an angle of 55 degrees to the mounting plate, while the cone of the A2612 is at right angles to the mounting plate. The antenna should be connected to the receiver by coaxial 50 ohm cable. The length of this cable should be held to a minimum. Photographs, diagrams and charts are provided.

PB 14139. HARBURY, P. L. M 3100 homing device. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-67.) 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes the M3100 homing device which is used to provide a simple means of homing on enemy radar systems, either aurally or visually. The unit described consists of two antennas with an intuned reflector, a special r-f relay and a 1/2 ATR rack containing a motor driven A-N cam, a phase inverter stage, and a power supply. Photographs and diagrams are included.

PB 14172 HARBURY, P. L. The M4601 and M4602 high-pass filters. (Harvard Univ. Radio Res Lab Rept. 411-113). 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
M4601 and M4602 are high-pass filters designed to work between 50-ohm terminations. Each of these filters has a cutoff frequency of about 800 Mc. Standing wave characteristics and the attenuation of these filters are given in graphs. Construction details are given in drawings.

PB 14409. HARVARD UNIVERSITY. RADIO RESEARCH LABORATORY. Handbook of maintenance instructions for radio transmitting and receiving equipment AN/ARQ-8 (XA-2C). (Report 411-1B-8B). Mar 1944. 65 p. Price: Microfilm-$1.00 - Photostat-$5.00
Radio Set AN/ARQ-8 (XA-2C) is a 30 watt jamming transmitter and search receiver for the range 25 to 105 Mc, designed for aircraft installation. The transmitter and receiver use a common beat-oscillator to insure reception and transmission on substantially the same frequency. It may be used to jam enemy radio communications, radar sets, and radio control systems operating in the frequency range 25 to 105 Mc. This handbook includes sections on the general description, installation and adjustment, operation, the mechanical and electrical characteristics, and maintenance of the equipment. Photographs, schematics, drawings, and a table of replacement parts are included.

PB 14060. HARVARD UNIVERSITY. RADIO RESEARCH LABORATORY. Power output of AN/APT-1 transmitter vs. loads having selected voltage standing wave ratios. (Memorandum Test Report 411-MTR-13). 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The report shows a block diagram of the apparatus as arranged for the measurements and a graph of the experiment results. Experimental procedure is described.

PB 14047. HARVARD UNIVERSITY. RADIO RESEARCH LABORATORY. Tentative specifications for D2200 panoramic adapter. (Tentative Specifications TS-28). 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This document describes the D2300 "Panda" panoramic adapter designed by the RRL to operate with AN/APR-4 and AN/APR-5 series radar intercept receivers to permit their use as "setting-on" devices in general, but particularly for S-band jamming purposes.

PB 14056. HARVARD UNIVERSITY. RADIO RESEARCH LABORATORY. VSWR characteristics versus frequency of UG-21A/U plug and UG-23A/U cable jack. (Memorandum Test Report 411-MTR-17). 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers measurements on the subject connectors over a frequency range of 4,000 to 10,000 Mc. Experimental procedure is described and results shown in three graphs and a diagram.

PB 14053. HARVARD UNIVERSITY. RADIO RESEARCH LABORATORY. VSWR characteristics versus frequency of UG-21B/U plug and UB-23B/U cable jack. (Memorandum Test Report 411-MTR-20). 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Measurements on the subject connectors over frequency range from 4000 to 10,000 Mc are covered in this report. It describes the experimental procedure. Results of measurements are shown in two graphs and a diagram.

PB 14138. HENKEL, R. L. Operation of RCA A2212 in a coaxial cavity oscillator 2300. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-66.) 14 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes tests made by the Radio Research Laboratory on two type (RCA) A2212 vacuum tubes (Mehrgaard tubes). These two tubes were unsuitable for pulsed operation because of low peak emission but appeared to have characteristics which might be good for CW or amplifier use. The tube was designed for use as a 600 mc pulsed triode. A project was set up to investigate the performance of this tube in coaxial resonant circuits. Report includes diagram, graph, and lists of Radio Research Laboratory reports and technical memoranda so far issued.

PB 14365. HERTHA, H. C. and others. Development of the ZP-616 magnetron. (OSRD Rept 1019-2) Sep 1945. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes the development of the ZP-616 magnetron which was needed originally for noise-modulated jamming of enemy radar. The requirements were that the tube operate as an oscillator in the range of 785 to 1100 Mc and deliver 1 Kw output. Three experimental tubes were built of which two surpassed all specifications. The "J" type anode structure was used to give good tuning range, efficient cooling and freedom from parasitic resonances of the tuner. Power output was almost 5 Kw. and plate efficiencies of 85% were reached. The report contains drawings, photographs, and characteristic curves of the tube.

PB 14042. HOGLUND, R. H. and others. A 3-6 CM low-power oscillator. (Harvard University, Radio Research Laboratory. Technical Memorandum 411-TM-139). 1944. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
The Western Electric D164694 (Bell Labs Exp 1280 CT) tube, a magnetically-focused, velocity-moculation tube, may be used in a wide-band waveguide type of cavity (A3106) to provide in the order of 10 mw output over the range of 3 to 6 cm. The oscillator is tuned by a single dial over the range, and the necessary adjustments of voltage and focusing are made automatically. Photographs, graphs and diagrams are appended.

PB 13273. HOLLINGSWORTH, L. M., and others. An X-band frequency modulated relay system for video frequencies. (Mass Institute of Technology. Radiation Laboratory Report 977). 1946. 59 p. Price: Microfilm-$1.00 - Photostat-$4.00
Section 1 describes X-band system for transmitting video-frequency signals over distances such that several relaying points would be involved. The criterion of performance used was that the received signal should produce as good a PPI presentation as the unrelayed signal. With the two transmitters and two receivers that were built, it was possible to simulate one intermediate relaying point and for this transmission condition no difference could be detected between the two PPI presentations. Section 2 concerns the receiver from the input of the i-f amplifier to the video output. A few general remarks regarding the design of FM receivers are made including noise considerations, gain and band-width requirements and limiter design. This is followed by a more detailed description of this receiver. Section 3 is a description of means by which two channels were to be transmitted and received on single antennas with a proposed frequency allocation chart. Section 4 is a description of the proposed antenna and tower installations. Diagrams, photographs and graphs are included.

PB 13018. HOLT, R. B. The AN/APQ-3 (A-2600) and AN/APQ-4 (A-2700) wide-range microwave superheterodyne receivers. (Harvard University Radio Research Laboratory Rept 40). 1943. 13 p. Price: Microfilm - 50¢ - Photostat - $1.00
The AN/APQ-3 and AN/APQ-4 are superheterodyne search receivers, the first covering the range from 1000 to 3100 Mc on the fundamental of the local oscillator frequency, the other the range from 3000 to 6000 mc on the second harmonic of that frequency. Both are similar electrically differing only in the rf parts used. They employ a crystal mixer, a lighthouse tube local oscillator, a wide band i-f amplifier and other parts described in the report. Photographs and diagrams included.

PB 13899. HULSIZE, G. E. A wide-range microwave oscillator (A-1501). (Harvard University. Radio Research Laboratory Rept 11). 1943. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes an oscillator continuously variable over the range 1000 to 3300 Mc. It is a double coaxial cavity type using one 0L446 tube. The tuning for both cavities is done by a single dial. The oscillator is designed to serve as a local oscillator in a superheterodyne receiver, a laboratory test oscillator or signal generator, a basic oscillator for a super-regenerative receiver, or a basic oscillator for a harmonic generator producing frequencies above 3000 Mc for local oscillator or signal generator use. Photographs and diagram of the assembly included.

PB 14437. JASBERG, JOHN and BOCK, E. L. Preliminary instructions for the M 2404 (SA-14/SPR-1) and M2413 (SA-44/APR) RF switches. (Harvard University. Radio Research Lab. Rept 411-1B-44 RRL M2404 and M2413) 1945. 17 p. Price: Microfilm - 50¢ - Photostat - $2.00
The M2404 and M2413 R-F switches are designed to be inserted into a 50-ohm coaxial line so that an equipment may be switched to anyone of several different antennas, or so that any one of several pieces of equipment may be switched to one antenna. Both switches are suitable for operation at frequencies below 1000 Mc. The instructions given in the book discuss installation, operation, and maintenance of the switches. Photographs, diagrams, and graphs appear in the appendix.

PB 14371. JASBERG, J. H. and BOCK, E. L. Preliminary instructions for the M2415 RF switch (SW-44A/APR). (Harvard Univ Radio Res Lab Rept 411-1B-41) Feb 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The M2415 R-F switch is designed to be inserted into a 50-ohm coaxial line so that an equipment may be switched to any one of a maximum of six different antennas, or so that any one of up to six pieces of equipment may be switched to one antenna. This switch is designed for operation at frequencies up to 3500 mc. and within this range the standing-wave ratio it introduces in a flat 50-ohm line is less than 1.5 to 1. At frequencies greater than this the standing-wave ratio introduced is somewhat greater. However, it may be used up to about 5000 mc., since the standing-wave ratio introduced will not exceed approximately 3 to 1. Photographs and assembly drawings are included.

PB 14140. JASTROM, P. S. One-sided clipping of the 6D4 spectrum. (Harvard Univ Radio Res Lab Tech Memo 411-TM-69) Jul 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Measurements have been obtained of the effect produced by one-sided clipping on the Sylvania 6D4 noise spectrum. The frequency range investigated was 1 to 8 Mc. Curves for four different degrees of clipping are plotted. The relative levels are indicated on the accompanying graph.

PB 16560. JORDAN, JOSEPH. Type A-6 land borne target (modified). (AAF Eng Div TSEPE-665-103) Feb 1946. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Modification of 4 existing type A-6 land borne targets to make them suitable as moving targets for guided missiles. Six channel receiver equipment was installed in each car as well as AS-161/ART antennae. Transmitting equipment AN/TM-1 was modified to carry 6 channels. Other alterations and repairs were made in order to make the cars suitable as moving targets for guided missiles. Action has been discontinued.

PB 14093. KEES, H. The B3200-B2900 Dima-dinamate transceiver. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-20.) 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The B3200-B2900 Dima-dinamate transceiver is equipment designed to transmit a jamming signal on the frequency to which the receiver portion is tuned. Photograph.

PB 14337. KERWIEN, A. E. Use of the self-quenched oscillator in the "Pad" barrage jamming transmitter. (OSRD Report, 940-11). 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00

The 920-11-E transmitter (barrage jammer) known as "Pad" is described briefly in theory and operation. Attention is focused on the role of the self-quenched oscillator in generating non-coherent (random phase) pulses. A simplified analysis of the quenching cycle is presented and methods are discussed for adjusting such important factors as pulse duration and recurrence frequency.

PB 14109. KEARNEY, J. W. and RAMBO, W. R. A common-grid reactance-tube circuit at ultra-high frequencies. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-40A.) 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This memorandum indicates the behavior of a common-grid reactance tube circuit at ultra-high frequencies. This type of circuit is particularly suited to u-h-f use for several reasons: It is designed for triode tubes; it can be readily incorporated physically in grounded grid lighthouse tube oscillator circuits; a practical method of minimizing parasitic amplitude modulation is available, and the linearity of modulation is good. Diagrams and graphs.

PB 14020. KEARNEY, J. W. Reaction switching: A method of producing wide-band frequency modulation. (Harvard Univ., Radio Res Lab Tech Memo 411-TM-90) Mar 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Schematics and graphs are presented, and a method is described, of obtaining practicable frequency-modulation through the application of the principle that the shift in frequency resulting from the insertion of an additional reactance into an oscillator tank circuit is a function of both the magnitude of the reactance and of the fraction of the oscillator radio frequency cycle during which it is inserted.

PB 14254. KRAUS, J. D. and others. The M6120 broad-band antenna spinner for the M4100 (DBM) direction finding system. (Harvard Univ., Radio Res Lab Rept 411-233). Sept 1945. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes the performance characteristics of the M6120 broad-band antenna spinner which was developed for use with the M4100 radio and radar direction finding system. Illustrations of antenna patterns for both vertical and horizontal polarization are presented over the frequency range from 80 to 3000 mc.

PB 14192. KRAUS, J. D. Tabulation of antenna spinner assemblies for group M direction-finding systems. (Harvard Univ. Radio Research Lab. Rept 411-134). 1944. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00
This brief report contains a list and chart which have been prepared in order to assist in the identification of the various types of antenna spinner assemblies, developed or under development by Group M for use with the Group M Direction-Finding System.

PB 14097 KUHN, T. S. and HOFFMAN, L. Spectra due to simultaneous amplitude and frequency modulation. (Harvard Univ. Radio Res Lab. Technical Memorandum 411-TM-26). 1943. Price: Microfilm-50¢ - Photostat-$1.00
Most UHF self-excited oscillators when amplitude modulated by a sine wave are observed to give an out put spectrum which is not symmetrical with respect to the center frequency. This effect is generally accounted for by the presence of parasitic FM, which cannot be eliminated. To gain approximate understanding of the operation of a given tube, it is desireable to get an idea of the magnitude of the FM and of its phase relation to the AM. This memorandum describes a method of measuring the spectrum when the oscillator is amplitude modulated at a fixed percentage by a sine wave signal of known frequency.

PB 15198. LABIN, E. and others. Development of a sealed-off resnatron. (OSRD Div of Radio Coordination Rept 1034-1) May 1945. 128 p. Price: Microfilm-$1.50 - Photostat-$8.00
This report describes work on the problem of building a tetrode of the sealed-off type giving an RF output power of 3 to 4 kilowatts at 600Mc with an efficiency of 60 to 70%. This tube was to be designed after a resnotron developed by Dr. Salisbury which had an output of 20 Kw at 500 Mc and an efficiency of 70%. The development of many experimental designs and models is given and illustrated with plan drawings, photographs of tubes and experimental apparatus, performance curves, and diagrams of electron trajectories. The desired efficiency was not achieved however since the best efficiency obtained at 600 Mc was 30%.

PB 14098 LERENBAUM, MATTHEW T. Jammer frequency setting. (Harvard Univ. Radio Res Lab. Technical Memorandum 411-TM-27). 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of this project is to determine the best method for setting the various jamming transmitters on frequency. This report covers the preliminary results of the investigation, which was concentrated on a study of the possibilities of using presently available equipment for setting jammers which are now, or will shortly be in production.

PB 15039. LONGACRE, A. Light mountain radar set. (Mass Institute of Technology. Radiation Laboratory. Report 491) 1943. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a light X-band radar set for use in mountainous terrain. The small beam permits getting in close to the mountains. A routine beavertail scan associated with an elevation-range presentation shows plane as detached from the ground echoes. The estimates of weight make possible a set that can be carried in reasonable size packages in a rough terrain. Drawing and block diagram.

PB 15036. LONGACRE, ANDREW. V-beam G. C. radar. (Mass Inst of Technology. Radiation Lab Rept 507. Reprint of Rept 52, Aug 6, 1943) 1943. 6 p. Price: Microfilm - Photostat-$1.00
This report describes briefly a set suitable for high density ground control of aircraft problems. The mount rotates continuously and thus keeps the general situation before the controller and permits handling as many simultaneous problems as indicators provided. Drawings and diagrams included.

PB 14247. LOOMIS, C. C. Radar video analyzer. (Harvard Univ Radio Res Lab Rept 411-220) Aug 1945. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
This report gives both general and particular considerations involved in the design of a radar video analyzer. The analyzer is an electronic unit designed to accept the video output of a radar search receiver and to present, as readings on two meters, the pulse width and the repetition frequency of the signal received. The unit is designed to operate on negative pulses delivered by the search receiver. The amplitude of these pulses may vary between .4 and 2.6 volts, the width between .5 and 25 microseconds, and the repetition rate from a lower limit of approximately 30 cycles per second up to 5000 cycles per second. The report is illustrated by block diagrams, schematics, and graphs.

PB 14231. McGUIGAN, M. D. and others. Calibration methods for DBM-1 radio and radar direction finder. (Harvard Univ Radio Res Lab Rept 411-190) Jul 1945. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
Problems peculiar to calibration over the frequency range covered by DBM-1 (90 to 5000 Mc) are considered. The report describes (1) methods of calibration, (2) signal sources and associated equipment, and (3) precalibration checks and procedures. Calibration of each shipboard installation of DBM-1 direction-finding system is desirable in order to check the overall alignment of the system and to determine the deviations produced by the ship's structure.

PB 13274. McMILLAN, F.L. Jr. and others. Recovery time measurements in band-pass T.R's for various gases. (MIT Radiation Lab Rept 895) Dec 1945. 54 p. Price: Microfilm-$1.00 - Photostat-$4.00
The problems of recovery time in band pass TR tubes are discussed. Several attempts at obtaining good recovery time by using mixtures of gases and vapors are decribed, and the problems associated with the design and experimental work are outlined. A companion report number 929 by Dr. Henry Margenau gives the theoretical interpretations of some of the data presented here. Some material which has been included in the appendix is of a general nature concerning reactions encountered in gas discharges. Suggestions are made for future work in the field and the authors hope the rather complete outline of the experimental work done here will be of value to anyone carrying on the research. Thirty pages of curves and 10 photographs are appended.

PB 15031. MANN, M. M. and others. Vixen X. (Mass Inst of Technology. Radiation Lab Rept 607) 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a device which attenuates the power output of a radar transmitter, as a function of time, while preserving nearly normal sensitivity for signal reception. The device was attached to an airborne radar system and tests were made by observing one way signal strength, from plane to listening station on the ground, as a function of range. These tests show that signal strength for one way transmission can be held sensibly constant or made to decrease slowly while an airplane is approaching a target, and two way signal strength can be maintained at sufficient level to keep target in view, radar-wise. Graphs and diagram.

PB 14236 MARCOLIN, J. Modifications of the AN-148-A antenna for ECM use in the 200 MC region. (Harvard Univ. Radio Research Lab. Rept 411-203). 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The AN-148-A Antenna (a component of the SCR-729 Interrogator -Responsor System) has been modified in order to make it suitable for jamming Japanese GL radar in the 200 MC region. Since the desired radiation pattern of an airborne antenna to be used in jamming GL radars is one producing maximum radiation downward and forward with no deep nulls to the sides of the aircraft, the AN-148-A has been modified into a Vee type dipole. This modification is sufficietly simple to be performed at an air base at which only common tools are available. Drawings and graphs are included in this report.

PB 15037. MASSACHUSETTS INSTITUTE OF TECHNOLOGY. RADIATION LABORATORY. Preliminary handbook for experimental prototype model radio set SCR-620. (Report M-161) 1943. 120 p. Price: Microfilm-$1.50 - Photostat-$8.00
This handbook gives preliminary description of components of the set and procedure for installation, operation, adjustment and maintenance. Appendices contain photographs of components, diagrams of circuits, color code of resistors and condensers, beacon tube socket connections, instructions for aircraft operators, connection and couplings, cable list, and miscellaneous information.

PB 14110. MIDDLETON, DAVID. Note on the equivalent forms for the mean output of an unbiased linear rectifier subject to noise. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-41.) 1944. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
A general theory of the rectification of a modulated carrier in the presence of noise is briefly outlined from which power spectra, total powers, mean signal output, etc. may be determined. Report also contains a list of Radio Research Laboratory Technical Memoranda issued to Jan. 15, 1944.

PB 14160 MIDDLETON, D. Note on the theory of square-law rectification of a modulated carrier in the presence of noise. (Harvard Univ. Radio Res Lab. Rept 411-86A). 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
A mathematical discussion of the subject matter.

PB 14025. MONROE, R. B. and RHIGER, A. E. Test report (Test laboratory) F-2600 "Carpet III". (Harvard Univ., Radio Res Lab Tech Memo 411-TM-96) Apr 1944. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the results of measurements and tests conducted on a laboratory model of the F-2600 "Carpet III" transmitter, a noise-modulated jamming transmitter operating in the 475 to 585 Mc frequency range. A block diagram, an operational table and curves are included.

PB 14194. MOORE, T. E. and WADEY, W. G. Resonant probe in waveguide. (Harvard Univ. Radio Research Lab. Rept 411-137). 1944. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report discusses the use of a resonant probe in waveguide as a tunable stop-band filter for the AN/APR-5A receiver. Measurements of the reflection losses from the probe as a function of the probe length at several fixed frequencies in the range of 3 to 10 cm are shown and the calculated values of the frequency selectivity are given. The length of probe for resonance is approximately equal to $\lambda/4$, provided that the length does not exceed three-fourths of the guide height.

PB 14195. MOORE, T. E. and WADEY, W. G. Sensitivity of the AN/APR-5A in waveguide, 3 to 10 cm. (Harvard Univ. Radio Research Lab. Rept 411-138). 1944. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes the sensitivity tests and measurements of the AN/APR-5A receiver at frequencies above those for which it was originally designed.

PB 14203. MOORE, T. E. and WADEY, W. G. Waveguide installation for AN/APR-5A. (Harvard Univ Radio Research Lab Rept 411-149). 1945. 8 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report gives the status of the information gathered and equipment developed to date in connection with the waveguide installation for the AN/APR-5A microwave receiver. Photographs and drawings.

PB 14253. MORAN, JAMES M. Silent knight. (Harvard Univ., Radio Res Lab Rept 411-230.) Aug. 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
Silent Knight is a blanking circuit which permits a search receiver to listen through a radar operating in the same frequency band. Although it has been designed primarily for use with radars employing spark-gap type modulators, it is applicable to all radar-receiver combinations. Parts lists and schematic are included in this report.

PB 15040 MYERS, W. L. Weight analysis of airborne radar sets. (M. I. T. Radiation Lab Rept 450). 1945. 88 p. Price: Microfilm-$1.00 - Photostat-$6.00
The purpose of this weight analysis is to furnish information which may point the way for weight reduction in future airborne radar equipment. A weight comparison between the chief components of nineteen current airborne radar sets is included with graphs and tabulations. A mathematical expression for the weight of the group B parts (including mountings) of an airborne radar set is developed in this report.

PB 14183. NELSON, J. A. Mb302 skirted-stub antenna (Harvard Univ. Radio Research Laboratory. Rept 411-120) 1945. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
Description and data covering the Mb302 skirted-stub antenna. This antenna is a vertically polarized transmitting antenna designed to be mounted vertically on the rudder of a TBF airplane. Its field pattern is substantially circular in the horizontal plane and may be used at frequencies between 275 and 325 mc. It may also be mast mounted for shipborne use. Drawings and diagrams.

PB 15963. NORTON, KENNETH A. The polarization of downcoming ionospheric radio waves. n.d. 80 p. Price: Microfilm - $1.00 - Photostat - $6.00
In the use of radio direction finders errors in bearings are due in part to polarization of downcoming ionospheric radio waves. These waves have components polarized both parallel and perpendicular to the plane of incidence and with random relative phases. This report studies the polarization of the downcoming waves before they reach the earth's surface, and also the modification of the polarization thus achieved by ground reflection before they contact the direction finder. The problems arising when testing a direction finder by means of fields transmitted from a source at a comparatively short distance away are discussed. Drawings, curves, and formulae help to explain the report.

PB 14161. O'BRIEN, B. S., and PAN, W. Y. A/J wiring changes in SCR-268. (Harvard Univ. Radio Research Lab. Rept 411-118). 1944. 16 p. Price: Microfilm - 50¢ - Photostat - $2.00
This report describes changes in the i-f amplifier and gain control circuits recommended for the SCR-268 radar, and presents the reasoning behind such changes. Since these changes are related to the use of M1601/1602 units, their effectiveness is reflected in the over all data on the A/J modified SCR-268. This performance data is the subject of an additional RRL report (CESL Technical Memorandum, 113E). The present report is principally descriptive.

PB 16481. OHIO STATE UNIVERSITY. RESEARCH FOUNDATION. C-11 Antenna patterns for aircraft (Progress reports for period: March 31, 1941 to Nov. 30, 1943). 75 p. Price: Microfilm-$1.00 - Photostat-$5.00
These are reports (mainly bi-monthly) over the whole period and give information on the month to month progress of research at Ohio State University on the problem of measurement of aircraft antenna patterns. The development of methods of measurement using models can be followed in these reports. Reports include papers and graphs on incidental problems encountered in the course of research.

PB 16886. ORDUNG, P. F. Comparison of hydrogen thyratron modulator with hard tube modulator in the Mark 20 radar. (Naval Res Lab Rept R-2721) Dec 1945. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
This report compares a breadboard model of a hydrogen thyratron modulator submitted by Bell Telephone Laboratories with the hard tube modulator of the Mark 20 radar. The tests performed included comparisons of the radio frequency output powers, of the spectra, and of the operational characteristics of the radar when each modulator is used, and also included examination of the electrical operation of the hydrogen thyratron modulator. The tests showed that from an electrical standpoint the thyratron modulator would replace the hard tube modulator with nearly as good results, but with probable greater ease of maintenance. A spectrum analysis graph and photographs of the radar scope showing operation with both tubes are included.

PB 13941. PETERSON, D. A. G-1106 "Lo, Hi, Hi-How" double tape dispenser. (Harvard University. Radio Research Laboratory Test Report (Field Test Division) 411-TR-11) 1944. 8 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes a series of flight tests of an experimental laboratory double tape dispenser mechanism for packaged Window. It is designed to dispense Window up to 18" long which has been packaged and attached to 2 strips of thermoplastic or glued tape. Flight tests indicated that the G-1106 double tape dispenser is satisfactory. Photographs are appended

PB 14144. PETTIT, J. M. D 1902 motor-noise filter for TU-57B and TU-58B tuning units for SCR-587 receiver. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-74.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This report, prepared at Harvard University under contract with NDRC, states that the combination of the original filter plus two of these low-inductance condensers takes care of both the low and high frequency noise which is caused by the small d-c motor which provides automatic drive to the tuning units.

PB 14091. PLOTTS, E. L. Modifications on the RC-183 Mandrel. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-19.) 1943. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers changes on the present Mandrel so that it will operate on the new Freya frequency. Changes, which are not difficult and could be made in the field, are enumerated here.

PB 14196. RAHURN, L. E. and BRIDGEFORD, G. R. Single-dial operation of AW/APT-4 (XA-2), (P3400) magnetron transmitter. (Harvard Univ. Radio Research Lab. Rept 411-139). 1944. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes experiments made to determine the performance of an APT-4 magnetron transmitter operated as a single dial spot jammer over wide frequency ranges. When operated in this manner the transmitter is timed for maximum output at some frequency within the desired range of single-dial operation after which the antenna "coupling" control is not moved. Changes in frequency are made by means of the "Frequency" control which adjusts the length of the resonant lines.

PB 14156. RAMBO, W. R. Class C operation of reactance tubes (Harvard Univ Radio Research Lab. Rept 411-82). 1944. 19 p. Price: Microfilm - 50¢ - Photostat - $2.00
This report describes the theory and application of Class C operation of reactance tubes. A method of reactance tube operation is described in which the angle of plate current flow is always less than 360 degrees. The scheme is particularly applicable to the wide-band modulation of power oscillators where reactance tube plate dissipation is an important factor, since a considerable reduction in dissipation is possible through this type of operation. Diagrams and a bibliography are included.

PB 14146. RAMBO, W. R. A low-power spot-jamming transmitter A3500. (Harvard Univ., Radio Res Lab. Tech Memo 411-TM-78.) 1944. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report, prepared at Harvard University under contract with NDRC, describes a circuit for a low-power spot-jamming transmitter. The circuit design is perfectly general and can be scaled up in power with an appropriate choice of tubes. Modifications are possible in the frequency range covered.

PB 14108. RAMBO, W. R. Notes on a common-grid reactance tube circuit. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-40.) 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
A reactance tube circuit is described that is particularly suited to wide-band frequency modulation of power oscillators operating at frequencies where simplicity of design is a prime consideration. The circuit tends to minimize the parasitic amplitude modulation that normally limits reactance tube operation, and it is possible to eliminate completely this undesired modulation by a simple circuit adjustment. The circuit is particularly suited to the use of triodes as reactance tubes, an advantage for some high frequency applications. Diagrams and graphs are included.

PB 14188. RAMBO, W. R. and others. Test information on resnatron types X-124 and X-139. (Harvard Univ. Radio Research Lab. Rept 411-126). 1944. 18 p. Price: Microfilm - 50¢ - Photostat - $2.00

This report describes the test circuits and methods used in, and the results of, the determination of the F.T. & R. 1 kw beam tetrodes, types K-124 and K-139. A brief description is given of the physical construction of the tubes, and the unique electrical features that influence circuit design are emphasized. No attempt has been made to describe the test cavities and auxiliary apparatus in detail, but the important design considerations have been indicated. The distinguishing features and comparative performance of several types of each tube are listed. Photographs and diagrams.

PB 14179. RAMBO, W. R. and TUCK, L. D. A triode oscillator-tripler. (Harvard Univ. Radio Research Lab. Rept 411-116). 1944. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00
This memorandum describes a means for obtaining r-f energy from a conventional tube at frequencies beyond its working range as an oscillator. This is done by using the tube as a harmonic generator, the tube supplying its own driving power. The experimental set-up, employing a type GL-522 lighthouse triode, developed power in the order of 2 watts at 1700 mc and at an anode efficiency of around 3 per cent. As this performance can be duplicated by more practical means with higher frequency tubes, the work was not carried beyond that reported here and the project was dropped. Two diagrams areincluded.

PB 14113. RAYMOND, R. C. The R1800 recording search receiver. (Harvard Univ Radio Res Lab Tech Memo 411-TM-44) Feb 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains a brief description and photographs of the subject receiver, a modification of the SCR-535 IFF set. It is intended to sweep a small band of frequencies and record the signals received on a frequency and time chart.

PB 14092. REID, R. E. and ROBBIANO, P. P. Energy spectrum of the B2000 RC-183 (Mandrel transmitter.) (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-19A.) 1943. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains the results of a series of spectrum analysis measurements made on the Mandrel transmitter. One graph plots the distribution of energy with frequency and another graph plots the voltage distribution.

PB 13931. REIGER, R. H. and MONROE, R. B. B-2800 "dina power amplifier". (Harvard University. Radio Research Laboratory Test Report 411-TR-1) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes the result of measurements conducted on an Aircraft Accessories Corporation pre-production model of the B-2800 "dina power amplifier" when driven by a Delco AN/APT-1 "Dina" transmitter. Measurements were made of the power output, bandwidth, and frequency range of this equipment. A description of each set of measurements appears in the report and test results are summarized in appended tables and curves.

PB 14174 RICHARDS, P. I. Resonant-section coaxial filters. (Harvard Univ. Radio Res Lab Rept 411-115). 1944. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
As frequencies of operation are increased, the short-section type of coaxial filters become too small to be practical. This report gives a general method for analyzing all type of coaxial filters and design equations for a number of band-pass and low-pass resonant-section coaxial filters. Experimental measurements on four structures are also included. Graphs and a table of design data are contained in this report. Refer also to PB 14178:"Supplementary information on resonant-section, coaxial filters" (RRL 411-115D).

PB 14178 RICHARDS, PAUL Supplementary information on resonant-section, coaxial filters. (Harvard Univ. Radio Res Lab Rept 411-115 D). 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This report is supplementary to PB 14174: "Resonant-section coaxial filters" (RRL 411-115). Design equations have been improved and several new types developed. These data are summarized in tabular form and an indication given of methods of derivation. Graphs included.

PB 15034. ROBERTS, A. BUPS (AN/UPN-1,2). An ultra-portable S-band radar beacon and its tactical uses. (Mass Inst of Technology Radiation Lab Rept 583) 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This report contains general information on the tactical uses and a description of the BUPS (AN/UPN-1,2), portable S-band radar beacons. Its chief characteristics are briefly described and some of the proposed tactical uses are illustrated. Photographs and drawings are included.

PB 15042 ROSENBERG, PAUL. Instructions for installation and maintenance of waffle relief maps in ultrasonic trainers. (M. I. T. Radiation Lab Rept M-206). 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions are given for the handling, installation, and maintenance of the waffle relief maps used in the ultrasonic trainers for AN/APQ-13, AN/APS-15, and AN/APQ-7, and similar equipments. The map is made of a thin, flexible sheet of white plastic material. It is very light in weight and can be rolled up for shipment. It is tough, durable, and withstands continual immersion in water.

PB 15048 ROTH, WILFRED and SIMONDS, W. N., Jr., Ed. Preliminary technical manual for Falcon trainer AN-APG-13. (M. I. T. Radiation Lab Rept M-182). 1944. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
The subject equipment is a signal generator which provides a simulated target signal for use with the AN-APG-13 equipment. It is intended for use in training operators to track the target echo appearing on the M scope of the parent equipment. This manual covers the employment and the theory of operation of the equipment. Complete instructions are given on use, adjustment and installation. Detailed schematics and drawings are supplemented by photographs.

PB 14100. SALISBURY, W. W. Notes on the velocity of radio waves in a coaxial line. (Harvard Univ., Radio Res Lab, Tech Memo 411-TM-30.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The purpose of this note is to point out a correction to the customary text book approach in calculating the group velocity of electromagnetic waves in coaxial line. A list of references is given.

PB 14334. SCHAFER, J. P. Audio frequency modulation for 15 KW cigar. (OSRD Report, 940-18). 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
A method to provide audio frequency grid modulation to the 15 KW Cigar (communication jammer) was devised and tested at Deal. Complete square wave modulation of the radio frequency output was obtained for all control frequencies over the 100 to 15,000 cycle range with average power output of 15 KW and a duty cycle of 1/2.

PB 14332. SCHAFER, J. P., and others. Noise modulation of 15 KW ground cigar. (NDRD Division 16, Report, 940-I9). 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
Various methods for providing improved noise modulation for the 15 KW Cigar Communications Jammer, AN/MRT-1 have been briefly investigated at Deal. Two schemes have been tried experimentally on an actual Cigar Unit. (1) A self blocking superregenerative circuit controlled by circuit noise was tried but was critical of adjustment and had only a 2-3 KW output. (2) A system employing grid modulation using video frequency random noise obtained from a 6D4 gas tube and amplified by means of a 5 stage amplifier with an 833-A triode as the power tube gave a radio frequency noise band of 800 Kc wide at 40 Mc with an output of 12 KW.

PB 14333. SCHAFER, J. P., and HUNT, L. E. Suppression of harmonics in 15 KW cigar output. (NDRC Division 15. Report 940-17) 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00

A three-section low-pass filter was built in and installed in the output transmission line leads of a 15 KW Cigar unit (communication jammer operating on 38 to 42 Mc with mechanical frequency modulation). This filter had a cut-off frequency of 64 Mc and tests show that the harmonic output power of the Cigar is reduced by at least 35 db for all harmonics which fall in the 100-150 Mc frequency band. Construction and installation information is given.

PB 14096 SCHEUCH, D. R. Preliminary report on propeller modulation detection. (Harvard Univ. Radio Res Lab. Technical Memorandum 411-TM-25). 1943. 7 p. Price: Microfilm-50¢ - Photostat-$1.00

This brief report describes tests conducted at the Radio Research Laboratory using the U. S. Navy Mark IV (FD) radar set in an attempt to detect propeller modulation components satisfactorily for the purpose of distinguishing real aircraft echoes from artificial ones. Satisfactory reproduction of the propeller modulation was not accomplished but results of the work so far have pointed to several ways in which the technique may be improved.

PB 14197. SCHEUCH, D. R. Modification of ASC-1 for dual-polarization operation. (Harvard Univ. Radio Research Lab. Rept 411-141). 1944. 29 p. Price: Microfilm - 50¢ - Photostat - $2.00

An ASC-1 Radar System has been modified to give a presentation that directly compares the relative amplitudes of vertically and horizontally polarized signals. Except for a restriction of the antenna position in azimuth to a 180 degree sector, the normal operation of the ASC-1 was left unaltered. An automatic sector scan emit was constructed for use with the PPI in search operation. An auxiliary indicator utilizing an L-type presentation was added for simultaneous display of vertically and horizontally polarized signals. The extent of the modification was slight enough to permit the use of the system for tests requiring conventional search operation with either vertical or horizontal polarization. Diagrams, photographs, and pertinent data are included.

PB 13041 SCHNEIDER, E. G. Brief description of MEW microwave early warning. (M. I. T. Radiation Lab Rept 428). 1943. 15 p. Price: Microfilm-50¢ - Photostat-$1.00

This MEW, through the use of two individual antennas, gives accurate tracking of both ships and planes within its range. The indication system, consisting of 5PPI and 5 B-Scan indicators, has been planned to give flexibility to meet the needs of all areas and to permit handling various traffic conditions during the day. Two transmitters (700KW Peak Power) and two receivers are used with this system. Its range extends to 200 miles. Photographs, diagrams and charts are given.

PB 14342. SHAW, R. C. Simplified double sideband 50 watt Dina (Memo.) (NDRC Div 15, Rept, 940-1.) 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00

This report describes the status of development in which the 50 watt Dina type jamming transmitter was at the time of writing. Its principle of operation was first, to generate and amplify random noise in the video band; second, to modulate the noise band up to any frequency between 21 and 34 mc in a balanced modulator whose output is double sideband suppressed carrier. The suppression of the carrier seems to differentiate this set from others starting with video noise.

PB 14449. SMITH, E. Instructions book on the M-2617 spare parts for replacement in M-2600 direction - finding equipment. (Supplement to 411-1B-38) (Harvard University Radio Research Lab. Rept 411-1B-38A) 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00

This document lists the parts of the M-2600 direction finding equipment which have the shortest life and for which replacements are available; it contains instructions as to time and method of replacement such parts.

PB 14246. STAVIS, G. Performance and applications of the M2914 relay. (Harvard Univ Radio Res Lab Rept 411-218) Jul 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00

This report describes the mechanical construction and electrical performance of the M2914 single-pole, double-throw, r-f relay. The effects on the electrical performance of the r-f relay of two types of right-angle connectors are shown by voltage standing-wave-ratio curves. Some possible applications of the relay are also pointed out. Photographs and drawings of the device are included.

PB 15029. STEINER, R. R. Instruction manual for installation of Radiation Laboratory Type B plugs on cables. (Mass Institute of Technology. Radiation Laboratory. Report, M-149). 1943. 11 p. Price: Microfilm-50¢ - Photostat-$1.00

In installing Type B plugs on high voltage cables, definite procedures should be followed if satisfactory results are to be secured. The various steps of stripping the cable, installing the plug, filling with a dielectric, and testing the complete installation, are described in this report. Illustrations of the various steps are given.

PB 14353. STRAUBE, H. H. Automatic tuning in jamming equipment. (OSRD Rept 993-1) Aug 1943. 16 p. Price: Microfilm-50¢ - Photostat-$2.00

Block diagrams are used to illustrate a discussion regarding the feasibility of various schemes for automatic tuning devices for aligning a jamming signal with an enemy signal. A "tracking" system and "comparison" or "feedback-stabilized" systems are analyzed.

PB 13286. STURTEVANT, J. M. and SAXON, E. W. A synchronization system for ground radar relay. (Mass. Institute of Technology. Radiation Laboratory Report 978). 1946. 58 p. Price: Microfilm-$1.00 - Photostat-$4.00

The development of radio relay equipment for relaying the information supplied by a large ground radar such as the MEW or the V-Beam was interrupted by the end of the war. This report describes the results of the considerable amount of experimentation which was carried out in connection with the problem of synchronizing the indicators at the relay receiving station with those at the radar for MEW video to be properly presented on a PPI at the receiving relay station. There is included a short discussion of some of the more important general considerations which arise in the design of a point-to-point relay system. Diagrams included.

PB-14161 SUTRO, P. J. The theoretical effect of integration on the visibility of weak signals through noise. (Harvard Univ. Radio Res Lab. Rept 411-77). 1944 53 p Price: Microfilm-$1.00 - Photostat-$4.00

This report describes a theoretical investigation on the effect of integration on the visibility of a signal through noise on a standard A-scope (deflection modulation). The theoretical conclusions have been confirmed in part by experimental work. The major difficulty in direct visual observation of the oscilloscope is a lack of homogeneity in the pattern. Theoretically, this lack of homogeneity can be overcome by integration over a time greater than the integration time of the eye. This can be done by photographing the image or by the use of a long persistence screen. Overload in the receiver may be of assistance in distinguishing a weak signal. Graphs are included in this report.

PB 15037. TOBEY, A. R. Beavertail height finder AN/CPS-4. (Mass Inst of Tech Radiation Lab Rept 504) 1943. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes briefly the use of the AN/CPS-4 (medium range microwave height finder) in conjunction with a search set to form a G.C.I. Station. Drawings and diagrams included.

PB 14366. TONKS, L. Some considerations governing design of electromagnets for piccolo series of multi-anode magnetrons. (Off Sci Res & Dev Rept 1019-1) June 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
A mathematical discussion giving some basic magnetron relations and a brief treatment of the subjects of ampere turns in the elctro-magnet coils, fit of the magnet to the tube, and variations in parameters over the tuning range.

PB 14310. TREVOR, B. A. Cathode ray-phototube demodulation of time division multiplex pulse signal. (OSRD Rept, 895-42.) 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes a procedure developed for the identification, analysis and demodulation of time division multi-channel pulsed signal by simple means. The method uses cathode ray tube oscilloscope and a phototube followed by a high gain audio amplifier which views a window in the cathode ray tube containing the channel pulse deviated with modulation. Respective circuit diagrams are appended.

PB 13777. U. S. NATIONAL BUREAU OF STANDARDS. INTER-SERVICE RADIO PROPAGATION LABORATORY. Second report on experimental studies of ionospheric propagation as applied to the Loran system. (Rept IRPL-R7) 1944. 67 p. Price: Microfilm-$1.00 - Photostat-$6.00
This report is a supplementary document to IRPL-R6, "Experimental Studies of Ionospheric Propagation as Applied to the Loran System" (PB 13778) and discusses ground and sky-wave observations with particular reference to variations due to the seasons of the year. It gives the findings of the program to determine the effects of differences in ionospheric conditions during the summer months.

PB 15086. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Handbook of maintenance instructions for Model AN/APD-1 airborne homing equipment. April 1, 1945. (Co NavAer 16-58-513). 1945. 123 p. Price: Microfilm-$1.50 - Photostat-$9.00
Model AN/APD-1 airborne homing equipment is intended for intercepting and homing upon radar signals at frequencies in the range 140 to 180 megacycles. The intercepted signal is monitored with headphones while homing indication is provided on an oscilloscope screen. A dipole-plus-director antenna is mounted on each wing of the airplane, pointing somewhat outboard so that the directional patterns of the two antennas cross on the line of flight and at the halfpower point. The outputs from these antennas are switched alternately to the input circuit of the superheterodyne radar receiver. The output of the receiver is in the form of a video signal which is fed to the headphones jack through a volume control and also through a synchronous switch which separates the signals from the opposing antennas for application to right and left output terminals. An efficient automatic gain control circuit holds the higher of the two outputs constant at a fixed voltage. In the Indicator unit the electron gun in the cathode ray tube is adjusted to produce a disk of light on the screen about the size of a small shirt button. The horizontal deflection of the spot, right and left, is controlled by the amplitude difference between the right and left signals. The vertical deflection is controlled by the AGC voltage from the receiver.

PB 15060. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Handbook of maintenance instructions for model KY-3/APN-7 range coder. (CO-AN 08-35 KY3-2). 1944. 54 p.
Price: Microfilm-$1.00 - Photostat-$4.00
The range coder is an adjunct to Radar Transpondor Beacon AN/APN-7, or similar equipment, and provides more positive identification of the interrogated aircraft that carries it. This positive identification is obtained when the range coder causes the aircraft's Radar Transpondor Beacon to transmit a pre-determined sequence of pulses which can be changed in accordance with operational plans and directives. This handbook furnishes installation, operation, service and maintenance information. Photographs, diagrams, charts, American-British glossary, and parts list are included. Published under joint authority of the U. S. War and Navy Departments and the Air Council of the United Kingdom.

PB 15075. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Handbook of maintenance instructions for Navy Type CPN-46 ACJ receiver for use in Navy Model ASB-series aircraft radar equipment. Revised March 7, 1944. (NavAer 08-5B-29). 1944. 115 p. Price: Microfilm-$1.50 - Photostat-$8.00
The purpose of this handbook is to give the maintenance, operating, and service procedures for radar receiver CPN-46ACJ, which is an integral part of any Model ASB aircraft radar equipment. Its purpose is to direct and amplify any relected signal which is received by the antennas, during the intervals between pulses from the ASB radar transmitter. The signals are applied to the receiver through the antenna switching unit. The relected r-f pulses are amplified, converted to an i.f. of 55 mc., and again amplified and converted to a second i.f. of 16 mc. After a third amplification, the signal is detected and applied as video pulses to video amplifier, which drives the cathode follower output stage of the receiver. The output video pulses from the receiver are fed through the antenna switching unit, which alternately transmits them to the horizontal deflection plates of the cathode ray tube in an indicator unit, where they appear as target indications. There are table of parts, diagrams, drawings and index. Instructions for reporting by Army Air Forces, British and Navy personnel are given.

PB 15106. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Handbook of operating and maintenance instructions for CN-45/UP attenuator. May 1, 1945. (NAVAER 16-5B-511). 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This handbook describes the characteristics, basic principles operation and maintenance of the CN-45/UP attenuator. The attenuator is a bank of resistors, an inductance, and suitable connectors mounted in a frame, and suitably protected from injury by a metal grill covering. The protective grill also protects personnel from injury due to shock or burn, and protects surrounding objects from the heat developed in the resistors. The unit is intended for use in testing and aligning the AN/APS-20 radar equipment. Specifically the attenuator has two uses: a. As a resistance load for the MD-5B/APS-20 modulator; b. as a magnetron conditioner on the AN/APS-20 system. A table of replaceable parts, photographs, a schematic diagram and a figure on the use of octupus cable are appended.

PB 13560. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Installation specification for model AN/APA-30 airborne radar equipment. (NAVAER EI-147.) Mar 1945. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
Bureau of Aeronautics requirements and other information necessary for completing a satisfactory installation of the AN/APA-30 airborne radar in aircraft. A parts list and drawings of the installation and its component parts are appended.

PB 13606. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Installation specification for model GS airborne radio equipment. (NAVAER-EI-124). Nov. 27, 1944. 11 p.
Price: Microfilm-50¢ - Photostat-$1.00
Bureau of Aeronautics requirements and other information necessary for completing a satisfactory installation of the GS airborne radio equipment in naval aircraft. The location of major units specified herein are limits only. A parts list, drawings and cabling diagrams are included.

Generators, motors, transmission, distribution and allied equipment

PB 14160 CORBINE, J. D. Audio and supersonic noise generators. (Harvard Univ. Radio Research Lab. Rept 411-78). 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Two low-frequency noise generators have been developed using the 6D4 noise source tube. Both generators are substantially flat from 500 cps to 100 kc. Generator HB04 has a high load impedance and develops a peak-to-peak noise voltage of 180 volts. Generator HB05 is a low-impedance unit which develops a peak-to-peak noise voltage of 5 volts across a load of 100 ohms. This report is illustrated with photographs and graphs.

PB 14363. COLVER, RONALD H. Gas tube noise generator development. (Off Sci Res & Dev Rept 1024-2) Jan 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the development of an improved noise generator using the 2050 gas tube as a noise source. Early generators of this type did not produce noise with constant characteristics. A number of circuits in the course of development are shown, the final circuit being that of a noise generator and its associated amplifier which produces noise with highly consistent characteristics using unselected 2050 gas tubes. Characteristic curves are shown.

PB 14497. FINISON, H. J. Brush wear on rotating electrical machinery at high altitudes. 16 March 1943. (Army Air Forces. Engineering Division. ENG-M-54-656-613 E). 1943. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00
Test of electrical equipment systems to develop a solution to excessive brush wear on rotating electrical machines when operated at high altitudes. Flight testing at high altitudes definitely established that rapid wear on all production equipment could be expected during operation at high altitudes. Twenty-seven different brush materials were tested. Materials and models exhibiting fairly good performance at high altitudes are tested, in the appendix. It is recommended that these brushes be identified as high altitude brushes and, turbo superchargers, generators and inverters be equipped with these.

PB 15102. GENERAL ELECTRIC COMPANY, Schenectady, N. Y. Handbook of maintenance instructions for Model 5LY11SA5 (used with Model 3GBDIA16D voltage regulator) and Model 5LY11SA7 (used with model 3GBD1A18F voltage regulator). A-C/D-C motor generator sets for testing radio devices. Revised Feb. 1, 1945. (Navy Dept. NAVAERs 08-5Q-248). 1945. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The motor-generator set consists of a squirrel-cage induction motor and self-excited compound-wound direct-current generator equipped with a voltage regulator and reverse current relay. The generator is designed to supply 150 amps continuously, 200 amps intermittently, and a maximum current capacity of 250 amps, with the potential kept constant at 28 1/2 volts from no load to maximum load by the voltage regulator. The motor-generator set is a two-bearing unit with both rotors mounted on the same shaft with the motor stator overhung on an end bracket. Photographs, diagrams, outline drawings and a spare parts list are included.

PB 16480. INTERNATIONAL TELEPHONE AND RADIO MFG. CORP., EAST NEWARK, N. Y. Type MLS 518 Interference Generator. Progress reports of Aug. 19, 1941; Oct. 2, 1941; Dec. 4, 1941; Feb. 2, 1942; Apr. 3, 1942; June 5, 1942. 1942. 41 p. Price: Microfilm-50¢ - Photostat-$3.00
These reports cover the development of a high frequency radio interference generator, built per proposal 106 of May 22, 1941, from the acquisition of materials and parts to a model improved and modified as a result of field tests. Photographs and schematics of the latter model are given. This equipment includes a scanning receiver which has a cathode ray tube, on the screen of which the incoming signal appears as a pulse. Also included is a jamming transmitter which can be tuned to the frequency of the signal to be jammed by having its signal coincide on the oscilloscope screen with the received signal. Interference is provided as a warbling tone.

PB 14089 SLOCUM, L. T. Losses in various transmission lines at several frequencies. (Harvard Univ. Radio Res Lab Technical Memorandum. 411-TM-17). 1943 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The measurements given here indicate decibels loss measured during routine laboratory work with these cables. The information should be of use to persons installing equipment in aircraft as it will tell them what loss may be expected if a long transmission line is required between the antenna and the equipment measurements recorded on curves.

PB 15045. SMITH, C. A. Preliminary instruction for the manual bearing unit. (M. I. T. Radiation Lab Rept M-192) 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
The manual bearing unit is a compact auxiliary instrument which can be attached to most small Navy radars to provide an elementary form of true bearing so that navigational microfilm projectors can be used on small ships which carry radar, but do not have true bearing. It also can be used as a standby to the regular true bearing equipment on larger ships. This report describes the unit and its installation with SO and SF radars. Photographs and wiring diagrams are appended.

PB 15074. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Handbook of instructions for high frequency sweep generator, Type 709B. Reprinted May 15, 1945. (NavAer 08-5Q8-7). 1945. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
The complete H-F sweep generator is designed to be operated in conjunction with an oscilloscope for the alignment of wide band r-f or i-f stages (500 kc or wider at 70% response) which are within the frequency range of 5 to 65 megacycles. It consists of two units interconnected by a plug-in cable. One unit, the h-f sweep generator, contains the signal generating circuits, signal attenuator, and associated controls. The second unit, the rectifier power unit, contains an electronically regulated power supply. All component parts in each unit are mounted on a steel panel and chassis assembly which is enclosed in a steel case with handle and removable panel cover. Oscilloscope patterns, schematic diagrams, photographs and parts list with numbered parts are included.

PB 15659. U. S. WAR DEPARTMENT, CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report on captured Japanese spare armature for DC electrical machine. (Rep 332) Mar 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
There are no unusual features in the design nor are novel uses made of unusual material in the subject Japanese equipment. The estimated weight of the armature is 130 lbs., and the commutator insulation material is mica. No shaft was supplied with this spare armature for a direct current machine. Photograph is included.

PB 14903. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of instructions with Parts Catalog for motor-generator sets MG-213F, MG213FS, MG-213G, MG-213DP, and MG-213DH. (AN-08-45-37) Dec 1944. 31 p. Price: Microfilm-50¢ - Photostat-$3.00
Various models of the Onan motor-generator differ in the type of motor starter and electrical motor used to supply the motive power. Table of major specifications and identifications is given. These motor generator sets are used to convert electricity from 230 volt D. C., 220 volt A. C. or 440 volt A. C. to high frequency, 800 cycle A. C. and low-voltage, 28.5 volt D. C. Detailed description, operation, inspection, maintenance and lubrication, disassembly and test procedure are given. A parts list, wiring diagrams, and illustrations and drawings are included.

PB 15105. U. S. WAR and NAVY DEPARTMENTS and AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for model 5LY11SA6 direct-current motor-generator set. revised edition. Nov 21, 1944. (Navy Dept. NAVAER 08-5Q-267). 1944. 15 p. Price: Microfilm-50¢ - Photostat-$1.00

Motor generator consists of a d-c driving motor and a self-excited, compound wound direct current generator equipped with a voltage regulator and reverse-current relay. It is designed to supply 150 amp continuously, 200 amp intermittently, maximum current capacity of 250 amp. with the potential kept constant at 28½ volts from no load to maximum load by a voltage regulator. Drawings of the generator and its components, a connection diagram, a connection diagram for parallel operation, a parts list and a table of interchangeability of voltage regulators are appended.

PB 13915. WOODS, J. P. Network for regulating a-c voltage from variable-speed generator. (Harvard University. Radio Research Laboratory Rept 37). 1943. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report describes a simple inductance-capacitance network as used to regulate the voltage from a variable speed a-c generator and specifies under what limitating conditions such use of the circuit is possible.

Miscellaneous

French

PB 15435. U. S. WAR DEPARTMENT, CORPS OF ENGINEERS, ENGINEER BOARD. Evaluation report on searchlight. 12-inch, on stand with wheels. (Reg 2402) Mar 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Investigation of the captured 12-inch searchlight indicates that it was manufactured in France. The equipment consists of an aluminum drum, telescoping adjustable iron stand, iron mounting base with four castors, pressed metal mirror, incandescent light bulb, hinged front door with one-piece glass lens, stray light shield, and necessary wiring. It is believed that this searchlight is for use in theatres for stage spotlights, or in hospitals for emergency operating lights. Its use is limited to installation where a-c power is available. Photographs are included.

German

PB 15619. U. S. WAR DEPARTMENT, CORPS OF ENGINEERS, ENGINEER BOARD. Evaluation report on searchlight, 150 CM, complete with 4-wheel searchlight trailer, German. (Reg 2891) Jun 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This 150 CM antiaircraft searchlight, with detachable 4-wheel trailer, is of steel construction. The searchlight is equipped with a silvered glass parabolic reflector and the front door consists of 16 longitudinal sections of plate glass. The control system of the searchlight is entirely manual and consists of an extended control rod with hand wheel which is geared to a large elevation gear. Photographs are included.

PB 15439. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report on a cable, cross section - a training aid - German. Mar 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The item described in detail in this report is a four-conductor, belted, paper insulated, cable composed of four sector-shaped, stranded conductors, each wrapped with 7 layers of 0.004 inches, thick kraft paper. The construction of the cable is usual, except for the low design voltage, use of outside paper covering instead of sisal or jute, and the use of aluminum for the conductors. Views of cables are shown on attached photographs.

PB 13864. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Engineer Board letter report, light, railway, 250-volt, portable, German. (Reg. 2756.) Jun 21,1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Report, giving description and evaluation of a captured German railway electric warning light manufactured by A. Sartorius, Wuppertal and Barmen Company, of Germany. The light is 18 inches high, 12 inches wide, 10 inches deep and weighs 15 pounds and is used on railway switches as a signal light. Two photographs.

PB 14985 FISCHER, W. Berechnung von Stahlmagneten (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V E 3). (ALSOS Mission, Klotter File 11 E), 1939 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report discusses the relationship between the construction of a magnet and the induction of its field. It develops a mathematical method for the calculation of the construction of a permanent magnet.

United States

PB 10238. BARDEN, W. A. Hi-rate battery chargers. (Army Air Forces. Expt Eng Section. EXP-M-54-656-506.) Jun 1942. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Tests were made to determine whether the Hi-rate battery charger is suitable for use on aircraft batteries. The Marguette charger, model 170; Tungar charger, model GRB, 84B7; and Mercury Victory D-500 were used in accordance with instructions on an automotive type battery and on an aircraft type battery. In no case did the Hi-rate or fast charge result in a charge comparable to that obtained with a normal charging rate; therefore it is not satisfactory for use with aircraft batteries.

PB 16543. PINSON, H. J. Air blast cooling for aircraft electrical machines. (AAF. Eng Div. ENG-54-656-608Q.) 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
New proposal on air blast cooling requirements for air blast electrical machines submitted by a subcommittee of the Society of Automotive Engineers. A tentative standard to be reviewed by the Engineering Division, Materiel Command, Equipment Laboratory, included: (1) Inlet tube diameter for various machine capacities; (2) minimum air pressure to be provided at the inlet by the designer for various rates of machine air flow; (3) temperature chart for machine rating. Other proposals for future action are suggested.

PB 15966. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Service tests on airborne searchlights. (Rept 879) Oct 1944. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
This report covers a program of service tests on Airborne Searchlights to determine their performance characteristics and relative advantages and disadvantages as compared with the standard 60-inch searchlight. The results of these tests indicate that the Airborne Searchlight complied with all of the military characteristics which could be determined during the tests, but is unsatisfactory for illuminating aircraft flying at altitudes above 10,000 feet. Because of inherent design limitations and mechanical defects, the Airborne Searchlight did not equal the superior performance of the standard 60-inch searchlight for either low-flying or high-flying operations. Tables and photographs are included. Many parts of the report have been deleted.

PB 16525. WRIGHT, J. L. Electrical system on military aircraft. (AAF. Eng Div. ENG-M-54-656-582 J.) Dec 1942. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Results of a visit to Ogden, Utah Air Depot, Hill Field to observe methods in adjusting electrical system elements and to recommend changes where needed. It was found that the Wright Field instructional board was being used for an instructional course for personnel from all sub depots. Personnel had been set up so that there were specialists in each phase of the electrical system which added to the efficiency of this unit. Bulletins to sub depot personnel were acquainting them with results of faulty installation and failures to be expected from improper adjustment of electrical equipment.

FOOD AND KINDRED PRODUCTS

PB 17566. BALLS, A. K. Synthetic eggwhite from codfish and shrimp, Deutsche Eiweiss G.m.b.H. (FIAT Final Report 520). 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00

This plant manufactured a synthetic protein preferably from fresh filets of codfish although dried codfish and steam-dried shrimp were used. The process consists of removing readily soluble proteins with dilute acetic acid, extracting lipids with trichlorethylene, stirring the extracted tissue in warm dilute sodium hydroxide, neutralizing the partly hydrolysed protein with acetic acid, and spray drying into a white powder. One analysis of the powder showed that it contained 93.9% protein, 4.65% water, varying percentages less than unity of salt, calcium oxide, total ash, lecithin phosphoric acids, total phosphoric acid, 0.003% of organically bound iodine and a trace of fat. The product is a substitute for egg white for both food and technical uses, and is reputed to have superior whipping qualities, but seems to retain a slight taste of fish.

PB 19653. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Preliminary reports: list no. 96. 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00

Summaries, in tabular form, of reports nos. 1946 - 1961 on visits to German firms, giving names, locations, principal products, special interests, and physical condition of plants. The following firms, visited in October 1945 are included: Klein, Chanzlin & Becker (high pressure boiler feed and circulating pumps); August Eblhardt Sohne, Durach (glue); Suddeutsche Zollwolle AG, Regensburg (staple fibre, viscose); Suddeutsche Pektin-Gesellschaft mbH., Heilbronn (improvements in technology of pectin manufacture); Rohm & Haas, Darmstadt (pectic and diastatic enzymes); Pomosin-Werke-Kommandit-Gesellschaft, Fischer & Co., Frankfurt (ponace drying, manufacture of pectin); Seitz-Werke GmbH., near Mainz (filtration and sterilizing plant for fruit juices); Lorwinwerke GmbH. Heilbronn a.N. (fruit and vegetable preserving); Lurgi Werkestatte, Frankfurt a.M. (demonstration spray drier); Helvetia, Grose Gerau (fruit and vegetable preserving); Fritz Kaisir GmbH., Stuttgart (pectin manufacture); Pomol, Stuggart-Zuffenhausen (fruit juice and liquid pectin); Schumacherache Fabrik (filtering stone plates and filters for pectin factories); F & M Lautenschlager, Munich (makers of scientific apparatus, "Pectinometres"); Stadtlicher Versuchs & Forschungsanstalt für Wein und Gartenbau, near Wiesbaden (experimental and research work on fruit juices and pectin, jams, etc.); Deutsche Asbestwerke (Georgi Rennbold & Co. Rottenburg (asbestos).

PB 12980. U. S. QUARTERMASTER BOARD. Report of test of beans, baked, dehydrated - QMB T-232. (QMB Project T-185). May 1943. 8 p. Price: Microfilm-50¢ - Photostat-$1.00

Concludes that dehydrated, baked beans are easy to prepare and acceptable to the average soldier when served plain or with added ingredients. Methods of preparing beans, their palatability and preference are given in detail.

PB 16150. U. S. WAR DEPARTMENT. NEW DEVELOPMENTS DIVISION. Production and uses of agar in Japan. n.d. 1 p. Price: Microfilm-50¢ - Photostat-$1.00

Before the war, when sugar was available in Japan, the main use of agar was in the manufacture of candies and gelatin. During the present food shortage, a powder made from agar is used as a filler and as a rice substitute. The powder is mixed with boiled sweet potatoes, dried fish and other foods, and water is added. This information was received from Japanese Bureau of Fisheries and was transmitted to G-2 by the Natural Resources Section of GHQ, SCAP.

PB 10674. WINSLOW, CARLILE P. Possible production of protein yeast from wood sugar in the U. S. occupied area in Austria as proposed by Dr. Bergius and also other possibilities. Oct. 25, 1945. 18 p. Price: Microfilm-50¢ - Photostat-$2.00

This report is concerned with various possible methods of producing protein yeast from wood sugar in the United States occupied area in Austria. American authorities had decided not to approve or sponsor such a plan but since it was realized that there was a possibility that the Austrian government might consider supporting some such plan it was decided to submit the material which was available on the subject. Three proposals are submitted with this report. The first proposal, made by Dr. Friedrich Bergius, proposed the use of the Sulphite Pulp and Zellwolle Factory, Lenzing, to produce wood sugar from sulphite pulp by means of the Bergius concentrated hydrochloric acid process and to convert this sugar into protein yeast. It also proposed to produce from the waste pulping liquors of the sulphite pulp mill, a product known as Biosyl-protein. The second enclosure to this report, dated August 7, 1945, describes the facilities available for micel production. The third report is concerned with yeast-making from whey by the Waldhof method. Advantages and disadvantages of each proposal are discussed.

FUELS AND LUBRICANTS

German

PB 17379. AMMONIAWERK MERSEBURG G.m.b.H.; Leuna Tanklager - Project "Otto" (Tank storage project "Otto"). (MIS VII 67g 7003000). Oct 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00

This folder contains material relating to the establishment of a tank storage for the final hydrogenation products of the ammonia works. It deals with preliminary cost determination, the need of piping and machinery, and encloses reports on conferences held by interested German railway authorities. Location plans and storage drawing are included.

PB 7795. DEES, H. C. and others. Aviation fuels and lubricants - Technical Intelligence Exploitation, Herman Goering Aeronautical Research Institute, Brauschweig, Volkenrode. (AAF Tech Intelligence Rept I-8). May 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00

Interrogation of Prof. Otto Lutz and his assistant on rocket fuels and Professor Schmidt and his assistant on engine research. The full interrogation of Prof. Lutz is developed by Leist; synthetic fuels using Hydrazine-Hydrate; H_2O and coal and graphite pressed into tubes, as rocket propellants. The advantages of the Hypergol over Monergol type of fuels, and the J-2 fuel, and ideal characteristics of jet propulsion fuels were discussed. The GM-1 exhaust driven supercharger vs. supercharger, and the advantages of free piston engines were taken up. Prof. Schmidt's interrogation is summarized under heat transfer, combustion, and chemical research or engine fuels. Some questioning on a 4 stage axial flow turbine with 4 individual chambers, bound in one of the buildings is included.

PB 14623. DEHN, K. Motorische Prüfung der Betriebstoffe (Prüfstand) (Motor tests of fuels. Proving station). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 3). (ALSOS Mission, Klotter File 11 D). Sep 15, 1937. 16 p. Price: Microfilm-50¢ - Photostat-$2.00

This report gives a brief description of installations for testing fuels in one and multicylinder motors. Both short period and endurance tests are dealt with, and testing methods used in the U. S. evaluated on the basis of their results. Various circumstances which influence the outcome of such tests are discussed, as well as means for the regulation of these circumstances. The effect of the development of aircraft motors on the fuels and their testing is described. Photographs, drawings and graphs. Bibliography.

PB 14628. GIESSMANN, W. Motorische Prüfung der Betriebsstoffe (Flugversuche) (Fuel tests in motors (Flight tests)) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C6). (ALSOS Mission, Klotter File 11 D). Oct 1937. 18 p. Price: Microfilm-50¢ - Photostat-$2.00

The currently used methods of fuel and lubricant testing have so far not been developed as far as the selection of lubricants is concerned to permit the selection of a definite fuel for any definite type of motor. The only proper testing medium is an aircraft motor itself. Since, however, the exact flight conditions cannot always be duplicated in a multicylinder motor, a regular flight test is frequently indispensable. This report describes tests of this kind. Photos, graphs, tables. Bibliography.

PB 14622. KAMMER, E. H. Laboratoriumsprüfung der Schmierstoffe (Laboratory tests of lubricants) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 2). (ALSOS Mission, Klotter File 11 D). Dec 1937. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This monograph deals with the most important criteria for judging lubricating greases and oils and gives a brief description of the testing methods. Drawings of test apparatus and viscosity tables and graphs are included.

PB 6299. KRIEGSMARINE LUBRICANTS. n. d. 16 p.
Price: Microfilm-50¢ - Photostat-$2.00
This compilation of Navy lubricants contains all the technical requirements of the lubricants used on board German warships. Test methods of the Kriegsmarine are given, as well as summaries of Navy lubricating oils and greases. A detailed description of each kind of oil and grease follows. In English.

PB 14628. MAYER-BUGSTRÖM, K. Prüfung der Alterungsbeständigkeit von Flugmotorenölen (Stability tests of aircraft lubrication oils) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 8). (ALSOS Mission, Klotter File 11 D). Mar 1938. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report discusses the changes taking place in lubricants on aging and their significance, the need for aging tests, and the most important aging test methods. Special attention is given to the tests used by the British Air Ministry, the French Air Ministry, the Indiana aging test, and the German DVL test. These methods are compared as to their principal features and results. Tables, diagrams. Bibliography.

PB 17117. RUHRÖL G.m.b.H. BOTTROP. Analyses for production control, 25 August, 1939, to 28 June, 1944. (MIS VII 67g 7003093). 75 p. Price: Microfilm-$1.00 - Photostat-$5.00
This is a collection of 31 individual papers giving analytical reports of various products manufactured at the above plant, the greater portion of which appears to be synthetic aviation gasoline.

PB 17118. RUHRÖL G.m.b.H. BOTTROP. Process data, 1 August, 1936, to 1 February, 1945. (MIS VII 67g 7003097). 108 p. Price: Microfilm-$1.50 - Photostat-$8.00
This is a collection of 33 individual papers dealing with various products manufactured at the above plant, mainly the production of synthetic fuels, intermediates and by products.

PB 17127. RUHRÖL G.m.b.H. Rapport - Buch Kammer 108, Buch 1 (Report on the operation of Stall 108 - Book 1). (MIS VII 66 b 7003011). 1944. 216 p. Price: Microfilm-$5.00 - Photostat-$15.00
This volume contains daily entries of operational notes on stall 108 of the synthetic fuel plant of the Ruhrol G.m.b.H. from October 6, 1942 to July 21, 1944. In German script.

PB 17128. RUHRÖL G.m.b.H. (Report on the operation of stall 54a - Vol. 2). (MIS VII 66 b 7003013). 1944. 232 p. Price: Microfilm-$5.00 - Photostat-$16.00
This volume contains daily entries of operational notes on stall 54a of the synthetic fuel plant of the Ruhrol G.m.b.H. from 10 April, 1942, to 31 October, 1944.

PB 14624. SEEBER, F. Kraftstoffprüfung im Versuchsmotor (Testing of fuels in a test motor). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 4). (ALSOS Mission, Klotter File 11 D). Oct 1938. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
The proper selection of fuel is of greatest importance for efficient functioning of aircraft engines. One of the most important properties of fuels for Otto motors is their knock resistance, and for Diesel engines their ignition delay. Respective tests are made in accordance with definite methods in one-cylinder motors. These methods are described in the report and various conditions affecting the knocking are discussed. Bibliography.

PB 7737. THOMAS, W. H. and ALLEN, J. G. Interrogation of Dr. Günter Spengler, Munich, formerly of Institute for Coal Research German Technical High School, Prague. (FIAT Final Rept 368). 1945. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
Subject matter treated in this report; General work at the Institute of Prague, hydrocarbon synthesis, mercuric addition compounds, organic addition compounds, research methods, adsorption, chlorination, reactions of olefins with SO2Cl2, alpha-omega dicarboxylic acids, peat processing, and associated personnel. Tables, a nomograph and charts on peat utilization and drying are included. Accurate boiling points and some other physical constants are tabulated for about 20 olefins.

PB 17121. TREIBSTOFFWERKE, RHEINPREUSSEN: Contact oven data. (MIS VII 67g 7003031). 1944. 192 p. Price: Microfilm-$4.00 - Photostat-$13.00
This volume contains production data on contact ovens 1 to 96 of the synthetic fuel plant, Treibstoffwerke, Rheinpreussen from 1 October, 1943, to 31 January, 1944.

PB 17119. TREIBSTOFFWERK, RHEINPREUSSEN: Gas cracking (MIS 67g 70003019). 1943. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
This report gives cracking plant input and output, September 1943, operational data for the same period, notes on gas analysis, and a drawing illustrating the brickwork in the combustion chamber.

PB 17120. TREIBSTOFFWERKE, RHEINPREUSSEN: Ofen II Invertierung (Conversion operations of oven II) 9 Aug tl. 13 Nov 1941. (MIS VII 67g 7003032). 1941. 192 p. Price: Microfilm-$4.00 - Photostat-$13.00
Figures giving the hourly account of the operations of oven II of the synthetic fuel plant of Treibstoffwerke, Rheinpreussen.

PB 17116. TREIBSTOFFWERK, RHEINPREUSSEN: Plants F and I Fischer reactors and condensation plants. (MIS VII 67g 7003020). 1944. 71 p. Price: Microfilm-$1.00 - Photostat-$5.00
This collection of documents contains information and drawings on the Fischer synthesis process and its control, plus calculations and production records of these plants. Also drawings of ground plans and equipment including photographs of the control rooms.

PB 16947. U. S. WAR DEPARTMENT. Civil Affairs information guide: Coal production and distribution in Germany. (Pamphlet 31-151). Oct 1944. 98 p. Price: Microfilm-$1.00 - Photostat-$7.00
This guide prepared by the Foreign Economic Administration discusses this subject under the following headings: I. Position of German coal in the European economy; II. German coal production and use; III. Ownership of coal deposits and organization of mining enterprises; IV. Administration of German coal production and distribution; V. Mine operation and the mine workers; VI. Recommendation for control of German

coal industry. Tables of statistics are given for: Steinkole and brown coal production in Germany, briquettes from Steinkole and brown coal briquettes production in Germany, coke production in Germany from Steinkole and from brown coal, consumption of coal in Germany in 1934 and estimated consumption in 1943, by consumer classes. Charts of organization of Allied Coal Board for Germany and its functions and of typical organization of German mines are also presented. Appendix lists leaders in German coal industry and some of their politico-economic positions.

PB 14627. WENZEL, H. Untersuchung der Schuriertle in Prufmotor (Testing of lubricants in a test motor). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 7). (ALSOS Mission, Klotter File 11 D). 1937. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report discusses possibilities of determining the characteristics of lubrication oils by short tests in experimental motors. Two such test methods are described in detail: the Bleniens motor test and the BMW test in an aircraft motor. Photos, drawings, diagrams. Bibliography.

PB 14632. WILKE, W. and others. Die Eigenschaften der Flugkraftstoffe und ihre Prufung (Properties of aircraft fuels and their testing) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 12). (ALSOS Mission, Klotter File 11 D). May 1940. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
This report deals with fuel properties as criteria for their proper use. Discussed are: knock resistance, volatility, purity, rating, stability, etc. in connection with reciprocating engines, and ignitibility, purity, rating, stability, viscosity, etc. in connection with Diesel fuels. Methods of testing fuels for these characteristics are described with particular reference to methods accepted by the "Bauvorschriften fur Flugmotoren: BVM" (Instructions for motor construction). Graphs and tables. Bibliography.

PB 14631. WILKE, W. Die Kraftstoffe fur den Flugmotor und ihre Herstellung (Aircraft motor fuels and their manufacture) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 11). (ALSOS Mission, Klotter File 11 D). Jul 1938. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Manufacturing methods of fuels for Otto (reciprocating) motors and Diesel engines are discussed with particular reference to German conditions. The discussion deals with both fuels derived from petroleum and from coal, and touches upon German sources of these raw materials. In addition, fuels made of organic raw materials and ethanol are described. Drawings, graphs and tables. Bibliography.

PB 14629. BORN, H. Die chemische Technologie der Schmieröle. (Chemical technology of lubrication oils). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV C 9). (ALSOS Mission, Klotter File 11 D). Jun 1938. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
This report presents a review of present knowledge concerning the chemical nature of lubrication oils and the relationship between their chemical composition and lubricating characteristics. The manufacture of high-grade automotive and aircraft oils is discussed with special attention to raw materials available on the German market, the quality limits of natural lubrication oils and their improvement by the use of synthetic methods. Synthetic additives which improve lubrication values of natural oils are dealt with. The discussion are carried on from the view point of a chemist. Tables.

Japanese

PB 16822. MORSE, J. H. Development of substitute aviation fuels and lubricating oils. (Japanese). (AAF Air Tech Intelligence Group Rept. 15). Oct 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
First Naval Fuel Depot at Ofuna is entirely concerned with research, experiment, and pilot plant production of aviation fuels and lubricants. Development of a pine root distillate which could be used in crude form in fuel injection engines, or refined by hydrogenisation for carburation engines, was ready for production as a substitute fuel, but is not considered practical for U. S. use as long as crude oil is available.

United States

PB 16603. GHORMLEY, DALE. Cooperative evaporation tests. (AAF. ATSC Memo Rept EXG-56-M4860). Aug 19, 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Five samples of low temperature greases were given evaporation tests in the convection oven as well as in the rotating shelf oven both controlled at the temperatures indicated to ±0.5°F. The rotating shelf oven gives considerably more reproducible evaporation results than are obtainable in the ordinary convection oven. Test results are tabulated in appendix.

PB 16298. HARDY, W. L. Oil test (lubricating) multi-cylinder engine - power plant oil no. 205, test no. 2. (AAF Tech Rept 4932). May 1943. 58 p. Price: Microfilm-$1.00 - Photostat-$4.00
Test to determine the characteristics of lubricating oils no. 232 and 205 in a single row radial air-cooled engine. A 50 hour endurance run was made with oil no. 205, which showed a slightly greater carbon deposit than oil no. 232 on the crown areas of the pistons, but inside carbon was less. There was greater carbon and sludge deposit with oil no. 205 than with oil no. 232, but less varnish formation and it was not as hard and tenacious. Tables, photographs and curves of testing data make up most of the report. Tests were made by the Wenner-Gren Aeronautical Research Laboratory.

PB 16309. HARDY, W. L. Oil test (lubricating) multi-cylinder engine - power plant oil no. 232, tests No. 1 and 2. (Army Air Forces, Tech. Rept. 4934). 1943. 116 p. Price: Microfilm-$1.50 - Photostat-$6.00
Test to determine the characteristics of lubricating oil no. 232 and 205 in a single row radial air-cooled engine. Two 50 hour endurance runs were made on a Wright Whirlwind R-975-7 engine. They check closely with respect to carbon and varnish formation although the quantity of oil circulated in the second test was reduced to about half of that used in the first test. Neither test showed much formation of sludge. Work was done by Wenner-Gren Aeronautical Research Laboratory, University of Kentucky. Photographs, tables and graphs make up the greater part of the report. Test data is included.

PB 16308. HARDY, W. L. Oil test (lubricating) multi-cylinder engine - power plant oil no. 244. (AAF Tech Rept 4933). May 1943. 117 p. Price: Microfilm-$1.50 - Photostat-$6.00
Tests to determine the characteristics of lubricating oil no. 244 in a single radial air-cooled engine. Three attempts were made for a 50 hour test but all were abandoned before completion because of stuck piston rings which caused cracks in other parts of the motor. Rate of wear is 6.4 times as fast as with no. 232 PP. oil. Oil consumption is 181.8% higher. Parts of the engine had a heavy coating of varnish and a slight coat of sludge. Oil temperatures, pressures and rate of circulation remained practically the same for each oil. It is concluded that no. 244 P.P. oil is responsible for excessive ring wear and varnish. Tables, diagrams and graphs make up most of the report. Tests made by Wenner-Gren Aeronautical Research Laboratory.

PB 16311. HARDY, W. L. Oil test (lubricating) multi-cylinder engine - power plant oil No. 245. (AAF. Tech Rept 5056). Nov 1943. 108 p. Price: Microfilm-$1.50 - Photostat-$6.00
Tests to determine the characteristics of lubricating oil no. 245 in a single row radial air-cooled engine. Test for 100 hours was interrupted several times for replacement of cylinder hold-down studs, intake valve stems, broken cylinder and cam ring rivets. In comparing oil no. 245 with oil no. 232, the oil consumption of no. 245 was 16% greater at 50 hours and 50% greater at 100 hours, and the rate of increase of viscosity was higher. There was considerably more wear throughout the engine, and four times as much sludge in the crankshaft. There was approximately twice as much carbon on the crown and in the ring grooves, but much less on the inside. Photographs, Tables and graphs make up most of the report. Tests were made by the Wenner-Gren Aeronautical Research Laboratory.

PB 16307. HARDY, W. L. Oil test (lubricating) multi-cylinder engine - power plant oil no. 246. (AAF Tech Rept 4930). May 1943. 81 p. Price: Microfilm-$1.50 - Photostat-$6.00
Test to determine the characteristics of lubricating oil no. 246 in a single row radial engine. The 100 hour test was interrupted by failure of the exhaust valave stem, piston pin circlip and cracking of a piston. Comparing tests of no. 246 and no. 232 oils, the following conclusions are reached:- Oil consumption on no. 246 oil increased 69.3% over that of no. 232 oil. Oil pressure, rate of circulation, and temperatures are substantially the same. Crown, ring and groove, and inside carbon deposits are less with no. 246 oil. Sludge deposit for 100 hours, increased 101% with the no. 246 oil. Top ring gap and top ring travel increased .017" and .029" as compared with .010" and .0008" respectively for the no. 232 oil. The no. 246 oil was judged an acceptable substitute for the no. 232 oil when used as a lubricant in an aircooled aircraft engine. Test was made at the Wenner-Gren Aeronautical Research Laboratory, in accordance with Air Corps Specification no. 3583. Photographs, tables and graphs make up most of the report.

PB 16310. HARDY, W. L. Oil test (lubricating) multi-cylinder engine - power plant oil No. 247. (AAF. Tech Rept 4937. May 1943. 94 p. Price: Microfilm-$1.00 - Photostat-$7.00
Test for 100 hours to determine the characteristics of lubricating oil no. 247 in a single row radial air-cooled engine, were interrupted by cylinder base stud failure, inter cylinder baffle fracture and failure of spark plugs. Inspection of the engine showed the pistons to have more wear than usual, also the crankpin showed wear on both the top and the under sides. The oil consumption with no. 247 oil was more than twice as high as with the 232 oil. Sludge deposits were lighter than with the no. 246 oil. Carbon deposits are somewhat lighter. Viscosity increased very little during the test. Top ring gap was worse than found with no. 246 oil. This oil, no. 247, was judged to be rather severe on pistons, rings and crankpin wear. It forms less carbon than usual and varnish is lighter and more easily removed. Test is one of several made on four lubricating oils by the Wenner-Gren Aeronautical Laboratory in accordance with Air Corps Specification no. 3583. Photographs, tables, graphs and diagrams make up the bulk of the report.

PB 16618. KARLE, J. The scattering of electrons by hydrocarbon films. n.d. 25 p. Price: Microfilm-50¢ - Photostat-$2.00
Several formulae are derived expressing the intensity of electron scattering for a variety of orientations of hydrocarbon films on a solid surface. Intensity contour maps may be constructed from these formulae for arbitrarily chosen models. The maps accompanying the report are helpful for determining the structure of a film. The work for this report was performed in the Chemistry Department of the University of Michigan as part of a cooperative project between the University and the Naval Research Laboratory.

PB 16013. U. S. NAVAL GUN FACTORY. Lubrication of ordnance material. (OD 3000). 1943. 47 p. Price: Microfilm-50¢ - Photostat-$4.00
This O. D. summarizes the lubricants and lubricant preservatives available for Ordnance use, giving their principal characteristics, applications and limitations. General principles of lubrication are stated and suitable substitutes are specified for the lubricants prescribed in the various lubrication instructions when such lubricants are unavailable. Information on changes to be made in lubrication procedure upon the approach of cold weather is presented. Appended are revisions of these instructions. Tables, graph, index.

PB 16035. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Fuel oil storage and equipment: Chapter 55 - Bureau of Ships Manual. 1945. 54 p. Price: Microfilm-$1.00 - Photostat-$4.00
This chapter supersedes articles 5-1 to 5-135 inclusive of chapter 5 and articles 38-45 to 38-84 of chapter 38 Manual of Engineering Instructions, and articles 1412 to 1428 of chapter 14 Construction and Repair Manual. Diagrams and graphs supplement text data on fuel-oil heaters, apparatus for testing properties of fuel oil, foam fire extinguishers, fuel-oil meters, fuel-oil strainers, fuel oil stowage, and equipment and procedure for oiling at sea.

PB 16534. WITTBORT, J. I. The effect of xylidine fortified fuels on various synthetic rubber materials. (Army Air Forces. Materiel Command Eng. Div Memo Rept [illegible] Part I). March 24, 1944. 19 p. Price: Microfilm-$[illegible] - Photostat-$2.00
This report records the results of experimentation to determine the effects and possible consequences of the use of fuel containing xylidine $(CH_3)_2\ C_6H_3NH_2$ on synthetic rubber materials found in aircraft fuel systems. Original tensile and elongation characteristics along with the volume swell, tensile and elongation characteristics after immersion in fuels containing 0 to 40% aromatics and fortified with 0 to 3% xylidien were determined and results are reported and discussed. Graphs and tables are included in the appendices to the report.

HIGHWAYS AND BRIDGES

PB 15427. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report of Italian tubular steel bridge. (Rep. 16). Jun 19, 1945. Price: Microfilm-50¢ - Photostat-$1.00
This report describes and evaluates an Italian bridge stated to have a capacity of 20 tons which can be constructed as a fixed or floating bridge. Tubular steel trusses are used as its main support. It might be quite useful on secondary roads. U. S. engineers constructed a bridge of this type in Italy in December 1944. It was sixty-six feet long. Fourteen photographs of the bridge and its various components are given.

INSTRUMENTS (PROFESSIONAL, SCIENTIFIC AND CONTROLLING)

German

PB 15394. BINNS, A. and BARROTT, G. Dr. Kickebusch, c/o Ernst Groh, Hoffman St. 60, Munich. (BIOS Evaluation Rept 340). Jan 19, 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Dr. Kickebusch has developed a compact form of strain gauge, which he considers has many applications in machine tools particularly in connection with presses. The gauge consists of an annular steel ring, a typical size for 50 tons capacity being 100 mm. outside dia., 60 mm. inside dia., and 40 mm. thick. A steel having a high elastic limit is used, Rockwell Hardness, approximately 0.63. Dr. Kickebusch stated that there had been no outstanding developments in the machine tool industry, and that the only noteworthy development was a new method of automatically cutting buttress threads in breach blocks for guns, by means of a single Widea tool.

PB 14708. HEINRICH HERTZ INSTITUT FÜR SCHWINGUNGSFORSCHUNG. Messungen der Schiffsschwingungen mit Beschleunigungsmesser auf Artillerieschulboot "Bremse". (Vibration measurements by accelerometers on the artillery training boat "Bremse"). (ALSOS Mission, Klotter File 12 C). Oct 1933. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
These measurements described in this report were made to determine the reason for particularly strong vibration of the school boat "Bremse" at certain speeds. Measurements were undertaken in 12 places in the engine room and selected spots elsewhere on the ship. The results of these measurements are also shown in diagrams.

PB 14704. HEINRICH HERTZ INSTITUT FÜR SCHWINGUNGSFORSCHUNG Die Schwingungserscheinungen an den Beobachtungsgeraten auf Kreuzer "Karlsruhe". (Vibration of observation instruments on board cruiser "Karlsruhe") (Vols. 1 and 2). (ALSOS Mission, Klotter File 12 h and i). Jun 1933. 56 p. Price: Microfilm-$1.00 - Photostat-$4.00
Vol. 1 of the report describes the arrangements for vibration measurements which were made direct on the observation instruments and especially on sighting devices. Vibrometers system Waas were used, based on the changing resistance of carbon membrance in accordance with the pressure exerted against them by the inertia of a mass depending on the amplitude and frequency of the vibrations. The influence of the resistance changes on the current flowing through the membrance is recorded by an oscillograph. Results of measurements under varied conditions of speed and wind are shown in grphs assembled in Vol. 2 of the report.

PB 15416. HUTCHINSON, J. B. Knorr Company, Heilbronn. (BIOS Evaluation Report 364). Jan 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This plant operates "Strator" cat dehuller manufactured by KIAG of Braunschweig, said to be the only example of its kind operated in Germany or elsewhere with the exception of the Swedish Plant. Subject firm also manufactures macaroni, soups, and baking powder. Information given in this report was obtained from visit to plant, Aug 21, 1945.

PB 14692. JOHANN. Geräte zur Messung stossartiger Erschütterungen auf Schiffen. (Apparatus for measuring shocks on ships). (ALSOS Mission, Klotter File 10a). 1942. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
This document describes apparatus for measuring shocks suffered by ships which permit the evaluation of specific and effective strains affecting the movement of the ship or resulting in deformations and concussions. Their methods of operation are explained theoretically and mathematically and the tests made with them are described.

PB 15449. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured enemy equipment preliminary evaluation report. Regulator, oxygen, German EB 2444. (Reg 2444). Feb 19, 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The subject item is used to reduce the pressure of cylindered oxygen to workable values. It is similar in design and operation to regulators manufactured in this country, with one exception. The body is made of a die cast material instead of brass, which is commonly used in the United States. It is felt that this substitution was made because of the shortage of brass rather than because of any advantage resulting from the use of the material. Photograph is included.

PB 15437. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured equipment: Valve, thermostatic, German. (Reg 2404). Mar 19, 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The subject item is a thermostatic valve that is believed to have been used to vent gases and possibly liquids from a sealed container. The cover has a semi-circular scale bearing the words "warmer" and "kalter" to indicate temperature variations, with a set screw at the center to set the temperature range of the valve. Photographs are included.

PB 15526. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign material: German 60-day demolition clock. (Reg 2868). Jun 19, 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This device has overall dimensions of 4 3/4" diameter, and 5 3/4" height. The mechanism is divided into three sections by three heavy aluminum plates, 0.120 inch thick. The top section contains the time - setting dial and the can which operates the activating rod. The middle section contains the mainspring in its housing. The bottom section contains the clock works. The dial face has 60 divisions, each representing 24 hours of time. Photographs are included.

PB 15950. U. S. ARMY. CORPS OF ENGINEERS. ENGINEER BOARD. Captured German equipment: Rangefinding set, EB Reg 2908. Nov 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers a rangefinding set, manufactured by Wiechman. The set consists of a tape used as a base line, a hand held cylindrical sighting device with a sighting slot and two windows and a hand held sighting device with a target affixed to its top, and a canvas carrying case. Photographs and a diagram illustrating the principles of use are given.

PB 15947. U. S. ARMY. CORPS OF ENGINEERS. ENGINEER BOARD. Gauge, measuring precision, bench type - German. Aug 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This optical bench micrometer, manufactured by Carl Zeiss, is used for measuring inside and outside dimensions up to 100 millimeters and for obtaining the pitch diameter of screw threads by the "three wire method". A photograph is attached.

PB 15946. U. S. ARMY. CORPS OF ENGINEERS. ENGINEER BOARD. Instrument, comparator - German. Aug 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This instrument, manufactured by E. Leitz, consists of a microscope mounted on a vertical column over a table. The microscope eyepiece contains adjustable cross lines, metric and Whitworth thread outlines and a fixed protractor. The illumination produces a profile for opaque pieces. By means of the micrometer screws and the crosslines in the eyepiece measurements between points on the profile can be obtained. For screw threads the pitch, lead, depth of thread, type, etc. can be determined. A photograph is included.

PB 15945. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Instrument, tool, for precision layout work - German. (Register 2933). Aug 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Clamped to the base of this instrument, manufactured by Ernst Leitz, is an adjustable table having optical vernier adjustments in two directions at right angles to each other. The optical system of the microscope is contained within a ball bearing spindle. For layout work, where it is desired to mark a point after locating it, the eyepiece of the telescope is unscrewed and a flexible shaft attached in its place. A small 220-volt motor mounted on an extension above the vertical column furnishes the power. The bottom end of the spindle has a tapered hole which will take a small chuck and drill for spotting. Photographs are included.

PB 15452. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Report on captured German equipment: Stadia rod and a range pole set. (Reg. 2464 and 2390). Mar 19, 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The stadia rod is a folding type, four meters long. The rod is graduated to .01 meter, in alternate red and white, one-meter bands. The rod was used with an instrument equipped with stadia wires to obtain stadia distance. The range poles are made in two sections, each one meter long. The range poles were used as a sighting point in turning horizontal angles, laying out curves, running straight lines or similar instrumental work. Photographs are included.

PB 14710 WAAS, H. Die Schwingungserscheinungen an den Beobachtungsgeräten auf Panzerschiff "Deutschland". (Vibrations on observation instruments of the armored ship "Deutschland"). (Vol. 142). (ALSOS Mission, Klotter File 12 d & e). 1933. 86 p. Price: Microfilm-$1.00 - Photostat-$6.00
The accelerometer system Waas was used for the measurements which were made principally to determine the magnitude and damping period of vibrations caused by sighting and observation instruments by gun recoil. Experimental measurements were made both on the standing ship and at various speeds. Vol. 1 of the report contains their description. Vol. 2 the respective graphs and tables.

Italian

PB 15436. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Investigation of Italian vehicular compass. (Rep 18). 20 Aug 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This captured Italian vehicular compass is a conventional type of magnetic compass, shock mounted on a rubber bushing and designed to screw into a mounting bracket on the vehicle. The only unusual feature is the use of the index correction scale for angular displacement. Two photographs are included.

United States

PB 14309. ANDERSON, W. A. Quado dual indicator. (OSRD Rept, 895-37.) 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the development of a dual indicator for the visual comparison of two audio frequencies differing by less than five cycles per second. The final model is a dual Quado unit employing two strobation tubes and a means of switching between them so that the beats of the two frequencies appear on two separate indicators.

PB 12965. BADY, I. High resistance Wheatstone bridge. (Fort Monmouth Signal Lab. Eng Rept 10.) Jun 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
A conventional Wheatstone bridge circuit is used with a vacuum tube detector and a galvanometer to obtain the necessary sensitivity to make accurate measurements up to 111 megohms. Special features include means for indicating voltage actually across the resistor being measured, and a circuit for expediting measurement of the voltage coefficient of resistors. A circuit diagram and photograph are included.

PB 15109. BOONTON RADIO CORPORATION, Boonton, N. J. Instructions and manual of radio frequency measurements for Q meters, Types 100-A, 160-A and 170-A. (Navy Dept. Nav Aer 08-5Q-283). n.d. 37 p. Price: Microfilm-50¢ - Photostat-$3.00
The symbol Q is commonly used to designate the ratio of reactance to resistance of a coil of a condenser or other circuit elements having two accessible terminals. Methods of measuring the Q, or power factor of coils, small condensers, large condensers, insulating materials and resistors are given, including formulas. Operating instructions, circuit diagrams, photographs, and a chart are given.

PB 14214. COBINE, J. D. and GURNY, J. R. Range extender for general radio 760A sound analyser. (Harvard Univ., Radio Research Lab. Rept. 411-162). Mar 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
This report gives photographs, schematics, and analytical graphs of an instrument designed to extend the frequency range of the GR 760A sound analyser to 200 kc. This is accomplished by means of an oscillator and a tuned mixer to beat the noise at high frequencies down to a fixed frequency band on the sound analyser. The apparatus is easily constructed, simple to operate and has proved both reliable and flexible. The range of the equipment is normally 25 to 7500 cps.

PB 14161 COHN, S. B. Constant field strength ground plane for receiver R.F. response measurements. (Harvard Univ. Radio Res Lab Rept 411-89). 1944. 18 p. Price: Microfilm-50 - Photostat-$2.00
R-F frequency response and sensitivity measurements of receivers are usually made using an R-F signal generator directly connected to the receiver through a dummy antenna impedance and a short line. The response obtained by this test may differ greatly from that obtained in practice with an actual antenna, particularly with receivers having a wide pass band. This report describes a test system which permits an overall test of the receiver with its antenna connected in the manner in which it is to be used. This system has been tested in use and is suitable for measuring the frequency response and sensitivity of receivers from 50 Mc to 1000 Mc, where the receiving antenna is of a type designed to mount on a conducting ground plane. The function of this equipment is to maintain at the receiving antenna a field strength which has the same magnitude at all frequencies. Either relative or absolute values of field strength are obtainable. Photographs and diagrams included.

PB 16606. DUGGER, EDWARD. Comparison of A. C. and D. C. magnetization for magnetic particle inspection. (AAF ATSC. Eng Div Memo Rept TSEAL-4-M5143). Sep 19, 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The use of alternating current magnetization has been proposed as an expedient for eliminating magnetic particle interpretation difficulties experienced with the use of standard direct current magnetization in general engine overhaul inspection. In general, the results obtained by both methods were comparable for the parts examined. The use of alternating current magnetization does not eliminate all interpretation difficulties. The DC magnetization detects all discontinuities that the AC method indicates and in addition can pick up other flaws by virtue of deeper penetration. The AC unit cannot maintain continuous operation with currents applied over 600 amperes without either damage to the equipment or loss of time due to replacing fuses. These limitations make the AC magnetization equipment unsuitable. Appendices contain photographs and a description of test procedure.

PB 15772. EASTES, J. W. and MACY, R. Thickened vesicants. Applicability of the Stormer viscometer for viscosity measurements of thickened vesicants. (CWS T.D.M.R. 534). Jan 1943. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
A reliable instrument is required for studying the effect of variations in temperature, concentration, and molecular weight of thickness on the stability of thickened vesicants. Since viscosity is a satisfactory control property, an efficient viscometer is an important instrument. Tests were run, with liquids believed to be Newtonian in behavior, in a commercial Stormer viscometer and in the same viscometer modified to improve its characteristics. Tests were also run with thickened liquids which simulate thickened vesicants. The data are summarized in tables and curves in the experimental part of this report. A critique of the reliability of the Stormer viscometer is given in the discussion of this report.

PB 15784. EASTES, JOHN W. Thickened vesicants. Development of a precision viscometer for the study of the flow of viscous liquids. (CWS Tech Div Memo Rept 896) Mar 1943. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
This report describes work on a precision viscometer (capillary type) suitable for studying flow of thickened vesicants under different rates of shear. Two level-bulb capillary viscometers with capillary radii were constructed. There is also presented a brief summary of the fundamental equations for viscous flow. Tables and graphs are presented.

PB 15104. GENERAL RADIO COMPANY. Maintenance instruction book for type 736-A wave analyser. (U. S. Navy Dept. NavAer 08-55-149). 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This wave analyzer is intended for the measurement of individual periodic components of a complex voltage wave, such components having between 20 cycles and 16,500 cycles. It is, essentially, a sensitive heterodyne type. In addition to a description of the parts, this report discusses operation, suggestions as to use and servicing. Included are photograph, functional schematic diagram showing the principles of operation, wiring diagram, and graphs.

PB 16887. GEORGE, S. F. Balanced input sensitivity measurements using unbalanced signal generators. (Naval Res Lab Rept R-2692) Dec 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The problem of measuring the sensitivity of balanced input radio receiving systems with an unbalanced (grounded)

standard signal generator is considered for the frequency range 1.5-30 Mc. Particular emphasis is placed on the sensitivity measurement of direction finder systems employing goniometers with center tapped stators grounded through resistors often difficult to remove. Three different approaches are discussed: (1) the employment of resistive networks for maintaining a balance (2) the employment of unbalanced to balanced transformers and (3) the removal of the center tap and measurement as an unbalanced system. Results indicate that all three methods can be made to yield results in agreement within the limits of experimental accuracy. Two shielded balanced-to-unbalanced transformers were built with balance ratios of better than 50 db and coefficients of coupling of 0.93 and 0.91 for the low and high frequencies respectively. The report is illustrated with schematics and a photograph.

PB 15513. GEBTHER, WALTER F. Criteria of anoxia tolerance. II. Validation of a group of psychomotor tests as measures of the effects of partial anoxia upon human performance. (AAF School of Aviation Medicine. Randolph Field, Texas. Project 89, Rept 2). Dec 19, 1942. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
A group of seven psychological tests which can be administered in the altitude chamber to twelve men simultaneously by a single experimenter was developed. The primary usefulness of the tests would appear to be for group rather than individual measurements. Tables of test scores are included. See PB 15512 for earlier report (School of Medicine, Project 89, Rept. 1) which describes these tests.

PB 14189. HARVARD UNIVERSITY, RADIO RESEARCH LABORATORY Power output indicators. (Rept. 411-127) Nov 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
The F-2305, F2306 and F-2308, (AS-168/AP), power output indicators are designed to indicate the power actually radiated from an antenna. This is done by intercepting a small portion of the radiated power from a point near the transmitting antenna by means of a small probe or receiver. The resulting radio-frequency currents are rectified by a crystal detector and indicated on a d-c milliammeter.

PB 14390. HARVARD UNIVERSITY. RADIO RESEARCH LABORATORY. Preliminary instruction book for F2307/8 power output indicator (AS-168/AP) and (C-157/AP) (Rept. 411-1B-68) Feb 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
This equipment is designed for installation in an aircraft to provide a remote indication of the relative output being radiated from an antenna. It may be used during the adjustment of a transmitter or as an operation indicator. Includes photographs and schematics.

PB 17574. HASTINGS, A. E. and PAGE, R. M. Report on test on LT equipment. (Naval Research Lab Rept R - 1915). Jul 19, 1942. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The LT equipment consists of a portable, battery-operated transmitter and receiver for checking ABA equipments. Report describes tests to determine its frequency stability with time and battery voltage and to determine the mechanical effects of shock and temperature. The equipment should operate satisfactorily if the suggested changes are made in the next model. Photographs are included. This test equipment has a frequency range from 468 to 504 mc.

PB 14186. JASTRAM, P. S. Peak-reading voltmeter. (Harvard Univ. Radio Research Lab Rept 411-134) Apr 1945 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This report contains data on a voltmeter which has been developed for measuring peak voltage, particularly as applied to noise. The peak-to-peak amplitude range of the constructed instrument is 1 to 150 volts. The frequency coverage is 50 cps to 30 mc. Schematics are included.

PB 14135. JEFFRIES, C. D. The U400 noise tube tester. (Harvard Univ Radio Res Lab Tech Memo 411-2M-63) Feb 1944. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
A description of this electronic instrument which is designed to measure relative noise level of type 931 photomultiplier tubes. Photographs and schematics are included.

PB 12070. LADENBURG, RUDOLF and WINCKLER, JOHN. Description of flashmeter. (OSRD Rept 4646). Oct 1944. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
This flashmeter meets the need for a permanent recording device by converting the light signal into a voltage which can be recorded on a drum camera or other recording oscillograph. The apparatus has a wide range of sensitivity. It consists of a phototube of the electron-multiplier high-sensitivity type, and the necessary high and low voltage power supplies for the amplifying dynode and anode voltages. The output of the phototube is coupled to the line to the recorder through an impedance-transforming stage consisting of a cathode follower circuit, with a high impedance input and a low impedance output, to avoid distortion of the signal by the line capacity. Tables, charts, graphs, photographs and diagrams are included. This is a report under contract with Princeton University.

PB 14262. MANNING, L. A. A self-calibrating thermistor bridge. (Harvard Univ. Radio Res Lab Rept 411-247) Sep 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
A thermistor bridge is described which will measure r-f power in the range of zero to forty milliwatts, but which is adaptable to more sensitive measurements. The bridge works on the power-substitution principle, and possesses an attenuator directly calibrated in milliwatts, and a single balance control. The accuracy is independent of thermistor characteristics and ambient temperatures. A schematic of the bridge and a diagram of the calibration of the attenuator dial are included.

PB 14122. MAYBERRY, L. A. B3100 double peaking device. (Harvard Univ. Radio Research Lab. Technical Memo 411-2M-52). Nov 1943. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This publication gives very brief specifications and a descriptive diagram for a device which aligns the 30 mc. broad band amplifier of the B2300 (Dina) equipments by matching its output against that of a second pre-tuned amplifier.

PB 15044 MEYER, CHARLES A. Handbook of operating and maintenance instructions for test set TGI-30A. (M. I. T. Radiation Lab Rept M-204). 1945. 37 p. Price: Microfilm-50¢ - Photostat-$3.00
This manual describes the operation, adjustment, theory, and maintenance of Test Set TGI-30A, a combination c.w. signal generator, heterodyne type wavemeter, and receiver sensitivity measuring device. Its purpose is to provide an accurate and reliable method of checking the frequency of radio transmitters, of tuning and aligning receivers, of approximately measuring the I. F. gain of receivers, and of measuring the sensitivity of superheterodyne receivers. Its range of operation includes the bands from 8 to 15 mc, from 20 to 40 mc, and from 135 to 230 mc.

PB 15112. OSBORNE, M. F. M. and TAILOR, A. H. Non-linear propagation of underwater shock waves. n.d. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
Comparative measurements at large and small distances have been made on the pressure wave from a small underwater explosion. It is shown here that: (1) There is a small departure from the 1/r law for the peak pressure; (2) there is no detectable change in shape or "spreading" of the pressure wave with propagation; (3) the shock front is discontinuous within the limitations of the apparatus. A theory is developed here which is in quantitative agreement with (1) and (3) but in disagreement with (2). The theory predicts a small spreading of the profile of the wave which is large enough to have been detected. The theory shows that a spherically diverging wave of any amplitude always becomes discontinuous eventually. In practice the distance over which it must propagate before becoming discontinuous may be enormous. Drawing, tables and graphs are included.

OSRD

PB 14345. PETERSON, A.P.G. Type P525-A signal generator. (NDRC Div 15, Rept, 923-3.) 1944. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
This document contains a full description of an all-purpose portable signal generator for training operators of systems in the field and for testing receiver units. It covers a frequency range from 90 to 250 mc. The principle of operation is explained and specifications of all circuits and their elements given. Photos of the generator and a circuit diagram complete the report.

PB 10291. PODHORZER, E. King adjustable growler. Jan. 22, 1946. (Army Air Forces. Eng Div TSEPE-656-1562) 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This growler has adjustable jaws for testing various sized armatures and a prod with adjustable contacts for bar-to-bar tests and armature ground tests. A pilot light is used to indicate a faulty condition. The available potential for the ground test is approximately 500 volts rms. It was recommended that this growler be considered for future procurement since it has several advantages over the growler carried on the AAF stock list.

PB 14184. RAMBO, W. R. and HOWE, S. W. 1-KW water load for the measurement of R-F power. (Harvard Univ. Radio Research Lab. Rept 411-121). 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
Report contains description and data of a calorimeter-type water load developed to measure R-F power from 25 to 1500 watts at 250 to 600 mc. Reading time is 45 seconds average and the power indicating meter can be directly calibrated with 60 cycle power. Its accuracy is estimated at 10 per cent. Photograph, diagrams, and graphs.

PB 14008. RAYMOND, R. C. A-2651-Y pulsed oscillator. (Harvard Univ Radio Res Lab Tech Memo 411-TM-112) May 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
A-2651-Y is a pulsed oscillator for qualitative checking of receiver performance in the frequency range from 3000 to 3100 mc. It has an output power of about 50 milliwatts, delivered by a small antenna, and is designed for either laboratory or field tests. The instrument is housed in a metal carrying case (8" x 7" x 12") provided with a handle. It consists essentially of (1) a 707-B velocity-modulated tube in a cavity-type resonant circuit, a monitor, and a small antenna; (2) a pulsing circuit for pulsing the oscillator; and (3) a power supply circuit. Schematic circuit diagram included.

PB 15017. ROBERTS, S. 1N23 loss measuring set, type 7368. (Mass Institute of Technology. Radiation Lab Rept M-171) 1944. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
Instructions are given for the installation, operation and maintenance of the type 7368, crystal loss measuring set. This set is intended for acceptance testing of 1N23, 1N23A and 1N23B crystal rectifiers on the basis of conversion loss. Photographs and circuit diagrams are included.

PB 15047 ROBERTS, S. 1N23 noise measuring set type 7438. (M. I. T. Radiation Lab Rept M-190). 1944. 24 p Price: Microfilm-50¢- Photostat-$2.00
Instructions are given for the installation, operation and maintenance of the type 7438 crystal noise measuring set. This set is intended for acceptance testing of 1N23, 1N23A and 1N23B crystal rectifiers on the basis of output noise ratio. It has also been proposed for use in testing type 1N26 crystal rectifiers. Photographs and circuit diagrams are included.

PB 14346. SINCLAIR, D. B. and SOMERMAN, R. A. Type P523-A test oscillator. (OSRD Rept 923-1). Dec 1943. 20 p. Price: Microfilm-50¢ - Photostat-$1.00
This report covers specifications, operation, and maintenance of the subject unit which is designed for testing receivers in the field. The oscillator provides about 5 milliwatts of power over most of the frequency range from 40 to 500 mc., and a smaller amount of power at harmonic frequencies. Photographs, schematics, and a parts list are included.

PB 14225. SWINNEY, J. G. C., Jr. Probe voltmeters. (Harvard Univ. Radio Research Lab Rept 411-177) May 1945. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
This report collects a portion of the available information concerning probe voltmeters, their calibration, and their use. Three variations of the voltmeter are discussed and design information presented. Photographs, schematics, and drawings illustrate this report.

PB 14789. TRIPLETT ELECTRICAL INSTRUMENT CO., BLUFFTON, OHIO. Operating instructions for model 1200-G test meter. (U. S. Navy. NAVAER 08-5QS-6.) 1942. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
Model 1200-G test meter, manufactured in Bluffton, Ohio, contains a 200 microampere d'Arsonval meter, resistors, switches, a copper-oxide rectifier, a 1 1/2 volt battery and a 22 1/2 volt battery arranged to provide a variety of measurement ranges for radio set testing purposes. Directions are given for finding DC voltage measurements, AC voltage measurements, DC current measurements, resistance measurements and output measurements. Wiring diagram is included.

PB 14753. U. S. NAVAL RESEARCH LABORATORY. RADAR GROUP, TRANSMITTER SECTION. Instruction book for Vibrograph. 1945. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
The Vibrograph was developed to provide a rapid and accurate record of vibration transmission through shock mounts. Because shock mounts may amplify vibration, it is necessary to measure and record the ratio of unit displacement to table displacement for every frequency throughout the range specified for the apparatus being tested. The Vibrograph was designed to be used with a pair of General Radio Vibrometers or equivalent amplifiers. It will determine the quotient of two voltages fed to it from the vibrometer amplifiers, indicate the ratio and record it as a function of time, and will indicate and record the vibration frequency. Since it is essentially a ratio recorder, it may be used to determine the quotient of any two alternating voltages whose frequencies lie between 2 cps and 10,000 cps. Includes list of components, photographs, graphs and diagrams.

PB 15005 U. S. NAVY DEPARTMENT. Instruction manual for type TSX-3SE spectrum analyzer (formerly type 105) designed by MIT Radiation Laboratory, made by Sylvania Electric Products Inc., Industrial Apparatus Plant, Williamsport, Pa. (OO-NAVAER 08-5S-140). 1943. 37 p. Price: Microfilm-50¢ - Photostat-$3.00
This manual contains information on the operating procedure, arrangement of parts, circuit operation, and service notes for type TSX-3SE spectrum analyzer which is an ultra high frequency receiver with an oscilloscope indicator in which the local oscillator is frequency modulated by a sawtooth voltage proportional to the sawtooth sweep on the oscilloscope tube. Diagrams and photographs are included.

PB 15072. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Handbook of maintenance instructions for Hazeltine Model 1017 radio equipment, consisting of Model 1017-2 diode head. Reprinted Feb. 15, 1945. (NAVAER 08-5Q-236). 1945. 39 p. Price: Microfilm-50¢ - Photostat-$3.00
This handbook discusses the theory of converting an audio signal of selected frequency into various types of output as used with oscilloscope readings. Pulse rates, sweep second speed, audio wave limiters and other electronic characteristics are explained as it applies to this equipment. Adjustments necessary for efficient operation are presented. The use of the diode head to observe the shape of a pulse and to measure power and pulse duration is discussed. Drawings and schematics illustrate the equipment and a list of parts for it is given.

PB 15079. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Handbook of maintenance instructions for Model TSK-4SE radar test equipment. October 2, 1944. (Co NavAer 08-5e-150). 1944. 69 p. Price: Microfilm-$1.00 - Photostat-$5.00

The Model TSX-43E Spectrum Analyzer is a super-heterodyne receiver with a cathode-ray oscilloscope output indicator. The local oscillator is frequency modulated by a saw-tooth voltage wave which also produces a linear horizontal sweep on the cathode-ray tube. The spectrum analyzer displays the various frequency components of a radio signal as vertical pips on the oscilloscope; the frequency and power of a component are indicated by the position and amplitude of its pip. The spectrum analyzer is used for observing the spectra of pulsed oscillators, for measuring frequency, for adjusting radar system local oscillators, for checking magnetron pulling and AFC circuits, and for measuring standing waves and attenuation. Photographs, diagrams, charts and parts list are included.

PB 15107. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS. Handbook of maintenance instructions for Navy type CWI-60AAG range calibrator and Navy type CWI-20163 power supply (NAVAER 16-30-503). 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This calibrator and power supply are used to calibrate radar indicators, and accordingly is not permanently installed with other equipment. They are individually housed in black wrinkle-finished metal cases with a flexible cable. Mechanical and electrical characteristics and theory of operation are given. There is a table of replaceable parts, detail drawings, schematic diagrams and a wiring diagram.

PB 15090. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Handbook of maintenance instructions for reflectometer TS-377/U (bi-directional coupler). June 15, 1945. (CO-16-58-512). 1945. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
Bi-directional Coupler TS-377/U is a ground test set equipment used in checking or determing the voltage standing wave ratio and relative output power in the RF transmission line between a transmitter or signal source and its antenna or load. Thus, it performs a check suitable in determining how well the transmission line and antenna are matched. Although any signal source having the prope. power output and the proper frequency range, can be tested by Bi-Directional Coupler TS-377/U, Radio Transmitter T-123/ART-22 is the signal source usually checked. This handbook describes installation, adjustment operation and maintenance. Photographs, diagrams and a parts list are included.

PB 15101. U. S. NAVY DEPARTMENT. BUREAU OF AERONAUTICS Handbook of maintenance instructions for TS-48/AP echo box, AS-23/AP antenna and other accessories. Feb. 8, 1944. (U. S. Navy Dept. NavAer 08-58-48). 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The TS-48/AP echo box is designed for use in testing "S" band microwave radar sets. It may be installed permanently in aircraft or used on the bench. When coupled to a dipole placed in front of the radar system antenna, the echo box receives a portion of the energy radiated by the radar antenna. Since the echo box is a high Q resonant cavity, it will oscillate for a period of time after being excited by the radar pulse. As the cavity continues to oscillate, energy is radiated from the dipole to the radar antenna, and appears on the indicator as a saturated signal. This echo signal can be used to tune up the system and to measure changes in overall radar performance. Charts, photograph and drawing are included. Instructions for unsatisfactory reports by Army Air Force, British and Navy personnel are given.

PB 15086. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Handbook of maintenance instructions for TS-487/U voltmeter. Sept. 15, 1945. (NAVAER 16-35TS487-505). 1945. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
This handbook describes the characteristics, basic principles, operation, and maintenance of the subject equipment. The voltmeter is a small, lightweight, portable instrument designed to measure peak-to-peak voltages of recurrent waves, particularly of the type normally found in radar video circuits. It is used in setting the levels of video and synchronizing voltages in radar equipment as they are used in the operation of associated equipment. Illustrations include schematics, photographs and drawings.

PB 17953. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instruction book for Navy model RAU-2 receiving and recording equipment. (Manufactured by Friez Instrument Div Bendix Aviation Corp., Towson, Baltimore 4, Md.). (Navships 900,348). Sep 19, 1944. 88 p. Price: Microfilm-$1.00 - Photostat-$6.00
This equipment, covering a frequency range of 56 to 85 megacycles, is designed to receive, demodulate, amplify, and record the audio frequency of the signals emitted by the Army-Navy Model AN/AMQ-1 series Radiosonde in flight. It is suitable in all respects for use at Naval shore stations or aboard Naval vessels. It consists of the following major items: Antenna assembly; radio receiver; electronic frequency meter; recorder; recorder amplifier; and voltage stabilizer mounting rack. This instruction book covers theory and function, installation, operation, and maintenance of the equipment. Appendix contains schematics, photographs, drawings, parts lists and other tables.

PB 17420. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Instructions for radiosonde transmitting equipment, model TDC. (Manufactrured by Julien P. Friez & Sons Division, Bendix Aviation Corp., Baltimore, Md.). 1942. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
The radiosonde (Raysonde) described and illustrated in this publication is an instrument designed to be carried aloft by a free balloon. During its flight the radiosonde transmits radio signals which when properly interpreted, give and essentially continuous record of the pressure, temperature, and humidity of the atmosphere through which it passes. A description of the Raysonde, and its various parts is given, also instructions regarding preliminary checking, checking in preparation for flight, releasing the Raysonde, and evaluation of the records. Photographs, a circuit diagram, calibration chart, drift correction charts, and a sample Raysonde records are included.

PB 14787. U. S. NAVY DEPARTMENT. BUREAU OF SHIPS. Phantom antenna CRV-14AAS (MI-18708); field intensity meter CRV-60ABT; and H-F sweep generator equipment: Instructions. (NAVAER 08-5S-160.) n. d. 84 p. Price: Microfilm-50¢ - Photostat-$6.00
This handbook contains instructions for the installation, operation, and maintenance of the following equipment: Phantom antenna for use with model ASA aircraft radar equipment; field intensity meter for general radio use; H-F sweep generator for general radio use; and the rectifier power unit for use with the H-F sweep generator.

PB 16086. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report. Captured enemy equipment: German stereocomparator; EB Rep 3239, 3310 and 3400. Feb 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The subject instrument, manufactured by Zeiss-Aerotopograph, G.m.b.H., Jena, Germany, is used for the stereoscopic measurement of rectangular coordinates and stereoscopic parallax on vertical aerial photography, to be used in topographic map compilation, intelligence study, or special photogrammetrical investigations. A description of this instrument reveals no unusual features. Photograph is included.

PB 14809. U.S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions, Electronic multi-tester 662. (AN-08-45-6.) 1944. 26 p. Price: Microfilm-50¢ - Photostat-$2.00
The model 662 electronic multi-tester is a service instrument incorporating a vacuum tube volunteer for measuring ac and dc voltages, resistance and capacities within the ranges required in service testing radio and radar equipment. The instrument is housed in a steel cabinet having a sloping metal front panel upon which is mounted the direct reading multi-scale indicating meter, together with the necessary controls, jacks, switches, and pilot light indicator. The handbook is designed to explain installation and adjustment, operation and maintenance of the equipment. The mechanical and electrical characteristics of the tester are discussed in detail. There is a table of replacemnt parts. Photographs and diagrams illustrate the handbook.

PB 14810. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for insulation resistance test set, type G. (AN-08-45-24.) 1944. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
This is a portable insulation resistance test set for testing electrical resistance. It consists of a high range ohmeter of special design mounted in the same case with a hand operated direct current generator. This test set had a range from zero to 1000 megohms and in addition a scale marking for infinite resistance. The generator delivers a potential of 500 volts at the test terminals. The set is designed to be used for checking insulation resistance: Of cables; between conductors of multiple cables; between windings, and windings to frame in rotating equipment; and for other equipment where insulation resistance is and important factor. The handbook covers the operation adjustment, and maintenance of the equipment. Photographs and diagrams illustrate the handbook.

PB 14821. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for Model TS-6A/U oscilloscope calibrator. (AN-08-35TS8-2.) 1944. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
This handbook gives a general description of and instructions for the maintenance, installation and operation of the oscilloscope calibrator.

PB 14848. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for model TS-12/AP test equipment. (CO-AN 08-35TS12-2) Mar 1944. 41 p. Price: Microfilm-50¢ - Photostat-$3.00
The TS-12/AP is a test set specifically used for standing wave measurements of plumbing, TR and RT boxes, crystal mixers and antennas. The equipment consists of various items of bench plumbing, including a section of clotted waveguide with a gear driven travelling probe, an amplifier that takes its input from a crystal rectifier in the gear driven probe assembly, and various adapters to facilitate the location of the slotted section at any desired place in the test set up. This instruction book describes the operation, installation and adjustment, electrical and mechanical characteristics, and maintenance of the equipment. Drawings, parts list, schematic and photographs are included.

PB 14819. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for Model TS-13/AP test equipment. (CO-An 08-35TS 13-2.) 1944. 60 p. Price: Microfilm-$1.00 - Photostat-$4.00
This manual of instructions covers the installation, operation and maintenance of the TS-13/AP test equipment. It contains photos, layouts, circuit diagrams and block diagrams of the set with instructions showing the proper control setting for each use of this portable signal generator.

PB 15066. U. S. WAR and NAVY DEPARTMENTS and AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for model TS-268/U crystal rectifier test set. (AN 16-35TS268-2). 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
This instruction book covers the type TS-268/U crystal rectifier test set. The equipment is designed to provide a means of rapidly checking crystal rectifiers to determine if they are good or bad. The unit is completely self-contained in a waterproof, portable aluminum case. An automatic shut-off feature is provided which is actuated when the case cover is closed. Photograph and drawings.

PB 14872. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for Navy model LU-2 radar test equipment. (CO-AN 08-45-9.) Dec 1944. 42 p. Price: Microfilm-50¢ Photostat-$3.00
The purpose of this publication is to provide a complete list of usages, operational data, and maintenance information for the model LV-2 test equipment. This equipment operates on 470 5 mc and 493.6 5 mc and is used for accurately aligning or checking high frequency circuits. This equipment may be used as a heat frequency meter or test transmitter. Parts lists, schematics, drawings, and illustrations are include.

PB 14811. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for oscilloscope TS-324. (AN 16-45-44.) 1945. 82 p. Price: Microfilm-$1.00 - Photostat-$5.00
This handbook describes the characteristics, basic principles, operation, and maintenance of the Oscilloscope TS-324 (DuMont, Type 241). This portable test set is used for testing and maintaining electronic equipment in the laboratory and in repair shops in the field. The oscilloscope provides a visual analysis for examining and measuring voltage or current wave forms in electrical circuits.

PB 14812 U. S. WAR AND NAVY DEPARTMENT. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for portable test set AN/APM-3A. (CO-AN 08-30APM -2) June 1944. 37 p. Price: Microfilm-50¢ - Photostat-$3.00
This test set can be used in testing ASD, AIA, AN/APS-1, AN/APS-3, AN/APS-4, AN/APS-6 and AN/APS-15 radar equipments. The set can be employed over the range of 9300 to 9480 Mc to measure transmitter frequency and relative power output; it can also be used as a CW signal generator in receiver tests, and as a pulsed signal generator. The maximum r-f power which can safely be applied to the test set is 5 watts (37 dbm equals 37 db above one milliwatt). This handbook contains photographs, drawings, schematics, and a table of replacement parts.

PB 14781. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for TS-14/AP field test set. (CO-AN 08-35TS14-2.) n. d. 63 p. Price: Microfilm-$1.00 - Photostat-$5.00
The type TS-14/AP Test Set is a generator of calibrated r-f signals which are pulse modulated, and used for testing the operation of radar equipment. This instrument is made in two models which are similar in design and differing only in their frequency bands. The TS-14/AP has been designed for operation over the frequency range of 3200 to 3370 mc. The Navy model type LAD has been designed for operation over the frequency range of 2700 to 2900 mc. This instruction book gives information on the general description, installation, operation, mechanical and electrical characteristics, and maintenance of this equipment. Drawings, wiring diagrams, parts lists, and illustrations are included.

PB 14842. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for TS-51/APG-4 test set for AN/APG-4 and AN/APG-4X aircraft radar equipments. (CO-AN 08-35TS51-2). Sep 1944. 59 p. Price: Microfilm-$1.00 - Photostat-$4.00
This test set provides a means of adjusting and calibrating the AN/APG-4 or AN/APG-4X radar bomb release equipment before they are placed in service, and during test and maintenance operations. The test equipment functions by simulating operating conditions and permitting calibration and adjustment to be performed under the simulated conditions by means of a phase generator and two delay networks. It is designed for use with a cathode-ray oscilloscope. The handbook describes operation, adjustment, calibration, maintenance, and theory of operation of the test set. Many photographs, schematics, drawings, and parts tables are included.

PB 15064. U. S. WAR and NAVY DEPARTMENTS and AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for TS-108/AP radio frequency load. (NAVAER 08-50-15). 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00

Radio frequency test load TS-108/AP is designed to provide a matched load which absorbs r-f energy without appreciable reflection or radiation. It is used in bench testing of radars as a transmitter load for these equipments. Operation and adjustment are briefly described. Photograph and table of replaceable parts.

PB 15067. U. S. WAR and NAVY DEPARTMENTS and AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for TS-189/U test oscillator. (AN 16-35TS189-2). 1945. 26 p. Price: Microfilm-50¢ - Photostat-$2.00
The TS-189/U test oscillator has been designed to furnish a test signal or "target" for the AN/APA-17-M equipment to enable adjustments and directional checks to be made. Handbook describes operation and maintenance. Illustrations.

AN 16-35TS7-7

PB 14003. U. S. WAR AND NAVY DEPARTMENT. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of maintenance instructions for TS-7/ASQ magnetic compensator. (CO-AN-08-35TS7-2I) Oct 1944. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
This equipment is designed especially to compensate for the permanent magnetic field present in the ferro-magnetic members of an aircraft. This compensation reduced the spurious indications recorded during aircraft maneuvers by AN/ASQ and 4H2 installations which are caused by the presence of this permanent magnetic field. The handbook contains photographs, graphs, shematics, drawings, and a parts list.

PB 15103. U. S. WAR and NAVY DEPARTMENTS. AIR COUNCIL OF THE UNITED KINGDOM. Handbook of operating and maintenance instructions for crystal checker TMM-10 RL. Mary 1, 1945. (U. S. Navy Dept. NAVAER 16-5Q-504). 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Type TMM-10 RL crystal checker is designed to check crystals to determine whether they are still good after use and handling. The testing unit measures front resistance, back resistance, and back current at 1 volt. From this information one can distinguish between good and poor crystals by rejecting those which do not fall within limits specified for front resistance, back to front resistance ratio, and conductance. The checker indicates which crystals still pass the acceptance specifications, but does not indicate how much better than standard or how much below the standard good and poor crystals are. Photographs and circuit diagram.

PB 14213. WADEY, W. G. A variable cut-off high-pass filter for use with AN/APR-5A. (Harvard Univ Radio Res Lab Rept 411-161). Mar 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The R1024 variable-cut-off high-pass filter in waveguide enables the frequency of a signal received with AN/APR-5A to be read directly. It has been tested over the range 3000 to 10,000 Mc. The R1029 Harmonic Frequency Chart simplifies the determination of signal frequency from the order of the receiver local oscillator harmonic and the local oscillator frequency. Photographs, graphs, and drawings included.

PB 14090 WHITE, WARREN D. The F2305 transmitter output indicator. (Harvard Univ. Radio Res Lab Techincal Memorandum. 411-TM-18). 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The F2305 transmitter output indicator is a small device which is intended to facilitate normal tuning adjustments on carpet or mg transmitters. Photographs and a list of RRL technical memoranda are included.

LEATHER AND LEATHER PRODUCTS

PB 16522. BATTLES, H. G. Comparison of methods for dry cleaning and refinishing grain leather garments. (AAF Eng Div Memo Rept TSEAL-4-M5054) Mar 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Two methods, that used at O.C.A.T.S.C. and the Kirkpatrick, are compared. The Kirkpatrick process of refinishing grain leather garments is not adaptable or practical for use in depots now equipped for dry cleaning garments using the Stoddard Solvent method. Complete details of the two methods are given.

PB 12983. U. S. ARMY, QUARTERMASTER BOARD. Final report on cases, brief, possible substitutes. (QMB Project T-133). 1943. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Briefcases of leatherette, fabric and leather were tested for wearing qualities and resistance to water. Officers answered questionnaires on the type of case they preferred. It was decided to develop a substitute case incorporating various features of different cases tested.

PB 12048. U.S.NATIONAL DEFENSE RESEARCH COMMITTEE. Preservation of leather for use in the Armed Services. (Tropical Deterioration Information Center Rept 73). Jul 1944. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
In order to prevent the growth of fungi on leather under tropical conditions it is necessary to treat the leather with some preservative. The results of tests in which various fungicides were used are given. The treatments for leather recommended by the Inter-Service Research Bureau, London, are included also. The aim is to protect leather against molds and at the same time add ingredients which will give the leather the required water repellency. A number of formulae for preservatives are given. The appendix consists of tables giving results of tests on vegetable and chrome-tanned leathers which had been tested with four different preservatives at the National Bureau of Standards.

LUMBER AND WOOD PRODUCTS

PB 16282. FULLER, F. B. Conferences on production, grading and fabricating of aircraft spruce. (AAF Expt, Eng Sect EXP-M-56-4014) 1942. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This memorandum report discusses the availability of aircraft spruce and methods of increasing the supply for aircraft use by revisions in the grading procedures and length specifications. Prices were set for various grades and a revision in Army specifications for spruce lumber was submitted. More consideration was asked for lamination and splicing of shorter lengths.

PB 16617. JAYME, G. Erzeugung und eigenschaften von laubholzzellstoffen. (Production and properties of deciduous tree pulps). (Reprint from Silvae Orbis, Vol. 15, 1944) (Supplement to PIAT Final Rept 56, PB 1130) 1944. 35 p. Price: Microfilm-50¢ - Photostat-$3.00
The question of producing pulp from deciduous trees as a substitute for that from coniferous trees has come into importance in Germany. This article discusses pulping possibilities based on tabulated results of analyses of beech, birch, chestnut and poplar tree wood, fiber and pulp. The subject matter is dealt with in sections on morphology and structure, paper pulp, pulp for textiles, etc., chemistry of these woods, and summary. In German.

PB 16613. MARTIN, T. J. Forces developed by miscellaneous pressure devices used in gluing. (AAF Eng Div ENG-56-M4684) Jan 1944. 9p. Price: Microfilm-50¢ - Photostat-$1.00
Investigation of the amount of total force developed by various clamping devices used by woodworking facilities, including the maple retaining bar, pincer type clamp, fixed distance toggle throw clamp, cam-action clamps, and "clothespin" clamps. Fixed distance and simple pincer type clamps are unsatisfactory, but the maple bar, cam-action and small cam-action clamps are approved. Six photographs show each of the clamping devices discussed.

PB 16614. MARTIN, T. J. Forces developed by miscellaneous pressure devices used in gluing. (AAF Eng Div ENG-56-M4684, Addendum 1) Feb 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Addendum to January 10, 1944 report on clamping devices used by wood working facilities. Plywood "C" clamp had a total force of 400 pounds without excessive physical effort. It is believed satisfactory if pressure is not required over more than 3 square inches.

PB 16615. MARTIN, T. J. Forces developed by miscellaneous pressure devices used in gluing. (AAF Eng Div ENG-56-M-4684, Add. III) Feb 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Addendum III to report of January 10, 1944, on total force developed by various clamping devices used by wood working facilities. A jig of iron, maple and rubber using a door knob type tension wrench to tighten the pressure screws can develop a pressure of 235 pounds, with two spring leaves, and 380 pounds with 3 spring leaves. It is believed that a satisfactory gluing pressure can be obtained with this jig for the small joint areas usually involved in skin to rib gluing operations if it is carefully inspected and adjusted. See PB 16613, PB 16614.

PB 17560. PETERSON, R. B. Survey of the German logging, lumber and wood products machinery and equipment industry. 1946. 63 p. Price: Microfilm-$1.00 - Photostat-$5.00
In general the development of German woodworking machines is behind U. S. machines. A few machines have been developed which are not built or commonly used in the U.S.: 1. The "glueless" method of making core stock; 2. the knot hole and veneer patching machines; 3. the continuous plywood production method-which is apparently just under development; 4. plywood cylinder making equipment; 5. gang frame saws designed for small mill use, and other allied saw mill machinery; 6. special machinery for lead pencils, wood heels, parquetry, wood rulers and similar products. These methods and equipment are presented in detail in the appendix, with drawings and photographs.

MACHINERY (EXCEPT ELECTRICAL)

German

PB 15421. BARROTT and others. Boley, Esslingen. (BIOS Evaluation Rept 345) Jan 1946. 1 p.
Price: Microfilm - 50¢ - Photostat - $1.00
This concern employed approximately 250 men during the war period including a few French skilled workers. Their products (identical with prewar output) included watchmakers lathes, bench lathes, adjustable multi-spindle drilling machines and a diamond turning lathe. Approximately 20 machines of assorted types are ready for dispatch and considerable sub assemblies were available from stock. Standard machine tools are installed, including a R.60 Pittler Capsten.

PB 17322. BATES, E. B. Benni Schild, Hersfeld. (BIOS Evaluation Report 392) 1946. 1 p. Price: Microfilm - 50¢ - Photostat - $1.00
This firm is making electric irons, gas and steam unit heaters for factory heating, oil burners for the U. S. Army, and a simple type sheet metal charcoal stove. Work had been done in textile fibers radiator tubes, and stoves, but no new developments were evident.

PB 17558. BERG, GUNNAR. Investigation of the German air-conditioning and refrigeration industry. (FIAT Final Rept 573) Dec 1945. 35 p. Price: Microfilm - 50¢ - Photostat - $3.00
Based upon the writer's three mont[h] vestigation in Germany, the consensus is that Germ[any] has not developed anything unknown to American industry nor have they produced equipment or shown technique which surpass those of American manufacture. It is the writer's estimate that the German air-conditioning and refrigeration industry lags the American industry on the average by five to ten years. A separate appendix is devoted to a discussion of each of the following: Air conditioning, refrigeration, refrigerants, compressors, condensers, evaporators, refrigeration control valves, electrical cycling controls; tubing, piping, and fittings; cabinets. A list of plants visited of interest to the American industry, with a short history of each plant, is included. A list of references in German is also presented. Of special interest are the following translations of three memoranda on deep freezing and cold concentrating: 1."Deep freezing according to Birdseye process" by H. Simanowsky, June 25, 1945. 2. "Deep freezing of fish according to Birdseye process", by Keysler, June 25, 1945. 3. Cold concentrating process according to Krause-Linde", by H. Simanowsky", July 7, 1945.

PB 15398. BINNS, A. and others. Carl Schenck G.m.b.H. Darmstadt. (BIOS Evaluation Rept 332) Jan 1946. 1 p. Price: Microfilm - 50¢ - Photostat - $1.00
Approximately 1,000 employees were employed by this firm during the war. Balancing machines were completely redesigned and changed over to electronic recording either by oscillograph or meter. Pulsator fatigue machines have been developed further, and some very large machines of 375 ton capacity have been built for VDI. Two pulsators per month have been produced; these include a large amount of 2 ton machines for light alloy research. This information was obtained from visit to plant, Aug 3, 1945.

PB 15393. BINNS, A. George Reicherter, Esslingen. (BIOS Evaluation Report 343) Jan 1946. 1 p.
Price: Microfilm - 50¢ - Photostat - $1.00
This company employed 200 before the war, and 240 during the war. 85 percent on testing machines and 15 percent on parts for antiaircraft gun instruments. They manufacture "Briviskop" and "Brivisor" harness testing machines and a few spring testers. Output was approximately 200 of all types. The "Briviskop" machines are generally the same as those made prewar, but a number of detailed refinements in design are described. The "Brivisor" machine has an eyepiece microscope developed for internal work. A horizontal penetrator arm is used with the penetrator slidably mounted and equipped with a prism for viewing the impression. The "Brivo" machine for Rockwell tests was improved by a clamping device operated by a pre-loaded spring in the screw. Information was obtained from visit to plant, Aug 17, 1945.

PB 17323. BOOTH C. H. and others. Gunther & Co., Frankfurt a/Main, Volta Str. (BIOS Evaluation Rept 388) 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
This factory is probably the largest in Germany devoted to the manufacture of engineers' cutting tools. Great attention has been paid to the methods of cutting the flutes of twist drills, taps and reamers, and for this operation there is a room containing 90 specially designed machines which grind the flute form from solid hardened and tempered blank. It is recommended that engineers examine these novel machines.

PB 16140. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE B.I.O.S. Preliminary reports list no. 79. 1945. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
Summaries of reports, nos. 1635 - 1651, in tabular form, giving names of firms in Germany, locations, principal products, condition of plants, etc. Includes the following visited in August-September 1945: C.W. Putsch-Kolterhoff, Wuppertal-Cronenberg (auger bits); Albert Friedericks Jr., Wuppertal-Cronenberg (auger bits); C & H Dorken, Remscheid-Hasten (wood working tools); Loos & Kinkel, Remscheid (hacksaw blades and saws); Jul. Pet. Klarner, Wuppertal-Cronenberg (engineers' tools); David Dorfmuller, Sohne, Remscheid Hasten (engineers' tools); Rheinmetal Borsig, Research Laboratories Dusseldorf (metallurgical research); Lurgi-Thermic GmbH., Horrem Rhine (aluminium alloy production); Miesserling & Albrecht, Solingen (machinery for cutlery trade); F. Siepmann & Co., Solingen (machinery for cutlery trade); K. E. and H. Meuter, Solingen (chrome plating of cutlery dies, etc.); F. & W. Hendrichs, Solingen Merscheid (cutlery); J. A. Henckels, Solingen (cutlery and forgings); Eduard Wustof, Solingen (cutlery); Altenbach und Sohne, Solingen (cutlery); and Prazisionwerke Bruninghaus & Co., Bielefeld (ball bearings, etc.)

PB 15395. CONFORD, C., and others. Friedrich Deckel, Munich. (BIOS Evaluation Report 339) Jan 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This company continued its prewar production of engraving machines and Universal toolroom miller type F.P.I. The outstanding machine and development is the K.F.I. Universal copying machine. Copying is effected by link motion, but this layout enables a ratio of 1:1 to be obtained which is a big point over our Pantograph Millers which can only get down to 1.1/2:1. In addition the following ratios can be obtained: 1.5, 2, 2.5, 3 and 4 to 1. Catalog and sketch referred to in report are not attached. This information was obtained from visit to target, Aug. 7, 1945.

PB 15400. DANIELS, J. L. , and Craig, W. Becker Van Hullen A.G., Krefeld, Untergath. (BIOS Evaluation Report 310). 1946. 1 p. Price: Microfilm - 50¢ - Photostat - $1.00
This company has a tool machining department for plastic molding tools, but the machinery had been evacuated across the Rhine, and tools were being cut by hand. A 3000 ton hobbing press and a pleten drilling machine were examined. Company makes veneer and plywood presses. Samples of wall board made from sawdust and 10 percent soluble resin were seen. This information was obtained from visit to factory, Oct 22 and 29, 1945.

PB 15419. DOWDING, A. G., and RYDER, R.D.G. Klopp, Solingen Wald. (BIOS Evaluation Rept 347) Jan 1946. 1 p. Price: Microfilm - 50¢ - Photostat - $1.00
This firm had 1500 employees in its 3 factories - the main machine tool works, electric motor and hydraulic pump works, and foundry. Two machines were considered worthy of special notice: A new type of gear shaper where 2 cutter heads are opposed horizontally, the work being in the center; a long bed miller where work passes 3 sets of milling cutters (rough, semi-finished, and finished). This plant includes the first hydraulic Monfort with P.I.V. variable gear to spindle drive; hydraulic index and feed. Investigation was made Aug 21, 1945.

PB 5073. GETZ, CHARLES A. and PFEIFFER, R. V. Coal stripping bridge, Böhlen Gas Works, Böhlen, Germany. 1945. 7 p. Price: Microfilm - 50¢ - Photostat - $1.00
Report of inspection of a coal stripping bridge used in brown coal mining. This coal stripping operation has two layers of overburden and two layers of brown coal. Only the 1st layer overburden (maximum depth 47 meters) is removed by this long bridge-like construction conveyor. Four chain bucket diggers are used as a part of this conveyor bridge. Each digger is attached to the two major bridges. The overall length of the unit is 520 meters. The discharge end of the bridge is 49 meters above the base of the leg supporting the discharge end of the bridge. This leg rests on one meter of coal of the lower coal layer. The unit has two other legs, the central leg which rests on the top of the lower of the two coal layers and the third leg which rests on the plane that results when the first half of the upper overburden layer . These legs travel on double railroad rails. Four drawings included.

PB 5074. GETZ, CHARLES A. and PFEIFFER, R. V. Coal stripping operation, Neurath Coal Co., Neurath, Germany (near Köln). Jul 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of the authors on inspection of the above operation in June 1945. It was found that it was not a bridge type, but a fairly conventional opcration, using crane diggers, railway cars and rails, small cars pulled by a large chain, and a belt conveyor machine. In this mine there is a 40 to 70 meter overburden, under which there is a 25 to 35 meter layer of brown coal that contains a one half to one meter lay of sand-clay seam near its center.

PB 15392. GREEN and others. Alfing Kesser, Wasseralfingen. (BIOS Evaluation Report 344) 1946. 1 p. Price: Microfilm - 50¢ - Photostat - $1.00
This plant is probably the largest put up by the German Government for production of crankshafts for all types of engines. During the war they employed 4,000 operators and their average monthly output was 5,000 crankshafts. The plant is composed of all modern machines, about 90 percent, being center lathes, crank lathes and cylindrical and crank grinders. One machine of particular interest was a special mill by Heller's (ulm) for machining 6 pins simultaneously the actual cutting being done by inserted tooth milling cutters. Information was obtained from visit to target. Aug 17, 1945.

PB 15412. GREEN, H. G., and RADCLIFFE, S. Gebr Schmaltz, Offenbach a.M. (BIOS Evaluation Report 361) 1946. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
Machinery at this plant investigated Jul 16 and Aug 23, 1945 included airdraulic rivetters, gear teeth chamfering machines, and a wide range of woodworking machines. This firm employed 250 people before the war making a general range of woodworking machines and cask making machinery.

PB 14602. HUSSMANN, A. Berechnung und gestaltung von ventilfedern für flugmotoren (The calculation and shaping of valve springs in aircraft engines). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A-28). (ALSOS Mission, Klotter File 11C). May 1940. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
This report discusses the fundamental considerations for the calculation and the form of valve springs, with special reference to coil springs. Tables are given to supplement the calculations. A simple method of calculating spring sets is described. Bibliography, drawings and graphs are given. The report is in German.

PB 12610. JEHLE, L. P. Survey of leading manufacturers of gas compressors. Oct 1945. 40 p. Price: Microfilm-50¢ - Photostat-$3.00
An investigation of the leading manufacturers of gas compressors in the American, British and French zones, in Germany revealed the following: I. There has been an interesting trend in the development and production of reciprocating machines for the very high pressure range up to 3500 atmospheres; II. Several types of interesting rotary compressors for medium pressures and large volumes are made and used in considerable quantities; III. There have been no outstanding wartime developments in reciprocating equipment for use up to working pressures of several thousand pounds per square inch; IV. There have been no outstanding developments in turbo-compressors. The manufacturers covered in this report are: Demag, at Duisburg; Gutehoffnungshutte Oberhausen A. G. at Sterkrade; Brown-Boveri & Cie, at Mannheim; Maschinenfabrik Esslingen A. G., at Esslingen; Klein, Schanzlin &. Becker A. G., at Frankenthal; Uhde Gesellschaft, at Dortmund and Hagen; Messer & Co., GmbH., at Frankfurt Main; Maschinenfabrik Surth, at Surth, bei Koln; Maschinenfabrik Augsburg-Plattling A. G. (KAPAG), at Augsburg. Photographs and detailed drawings of compressors and parts are shown.

PB 17546. JOBERT, A. H. and DINGLEY, E. Profile milling and tool grinding machines, Deckel, Munich. (FIAT Final Report 633) 1945. 42 p. Price: Microfilm - 50¢ - Photostat - $3.00
This report describes the Deckel profile milling machine model KF1 and the Deckel tool grinding machine model S1, with photographs and diagrams. The new profile milling machine is designed around a compound pantograph mechanism which has a ratio of 1:1 between the cutter and the stylus so that the cutter will duplicate the exact profile of the template. A unique feature of this machine is that the stylus is provided with an optical mechanism which comprises a light beam and a bulls eye on a circular frosted glass. The purpose of this optical arrangement is to accurately control the roughing operation so as to leave the correct amount of material to be removed by the finishing cut. A novel feature of the tool grinding machine S1 is the method of mounting the slides on anti-friction roller bearings.

PB 1710. KIRSCHNER, H. J. Diesel engine study. 1945. 18 p. Price: Microfilm - 50¢ - Photostat - $2.00
Preliminary studies of large German diesel engines indicate that American designers have not yet produced equipment superior to German designs. Charts are presented comparing American and German engines. Three of the accompanying diagrams are of the engine M6V40/46KBB , which is of conventional design, single acting, 4 cycle, 4 valves per head with an exhaust driven centrifugal blower and an intercooler for the air. The remaining diagrams are of a 20 cylinder reversible, 4 cylinder marine engine with precombustion chambers, centrifugal super-charger and intercooler for the air.

PB 17366. LOSENHAUSENWERK, DÜSSELDORF-GRAFENBERG. Hydraulische universalprüfmaschine 35-100 tons mit pendel und pumpe (Hydraulic universal testing machine 35-10 tons with pendulum and pump). (MIS VII 67e 10 7000988) 1936. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00
One-piece drawing of the machine.

PB 13462. MATTESON, W. J. Captured foreign equipment : German Esterer serial no. 68291, mobile, electric driven, gang sawmill. (Army Engineer Corps. Engineer Board. Rep 2987). Sep 1945. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
This machine is powered by an electric motor, requiring a generator to form a complete unit. The mill is of the sash gang type, equipped with a hand operated carriage in two 4-wheel sections, only 8-16 inch uniform logs can be sawed by this German gang mill whereas Army type circular saw mills have proved very efficient in the production of lumber and timber from all sized logs, with differences of crook, sweep, taper, and speires such as are sawn in North and South America and the Pacific Area. Photographs are attached.

PB 15402. RENDELL and others. Adler Werke, Frankfurt. (BIOS Evaluation Report 334) Jan 1946. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
This firm was employed on the production of engines, gear boxes and transmission details for half track vehicles. The one machine which is of special interest is the Bullard Type Multomatic built by Magdeburg. This has 6 spindles at 21" centers, carrying 13" diam. 3 jaw hydraulically operated chucks with raised jaw ways for swarf clearance. Most of the cylindrical grinders are old type with the exception of three semi-universal machines built by Schmidt and Schmidt (Stuttgart). One of these had the formed wheel truing above the wheel and hydraulically operated. This plant was visited Aug 1, 1945.

PB 15415. RENDELL, O. and others. Schmidt & Schandt, Stuttgart. (BIOS Evaluation Rept 350) 1946. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
This firm making grinding machines and internal grinding spindles employed 350 men before the war and 500 during it. Only machine seen by investigators on visit to factory, Aug 16, 1945, which is unknown in the United Kingdom and the United States is a gear grinding machine. This is of the formed wheel type and noteworthy because (a) either one or two formed wheels can be used, and (b) the diamond bracket is rolled around a base circle and is not controlled by formers as in the Docutt Machine.

PB 15396. RYDER, R. and others. Opel Motor Works, Russelsheim. (BIOS Evaluation Report 338) Jan 1946. 1 p. Price: Microfilm - 50¢ - Photostat - $1.00
Before the war this company employed 24,000, during the war 12,000 and at present about 3,5000. The following machines are three recent additions: Deckel S. I. Universal Grinder, Forst Slot Driller and Hahn and Kolb (Stuttgart) Universal Die Miller. Opel's engineers also gave particulars of a horizontal edition of the Red Ring Gear Shaver, made by Hurth (Type Z81). This information was obtained from visit to target, Aug 2. 1945.

PB 15411. SIMMS and others. Diskus Werke. Frechen. (BIOS Evaluation Rept 360) Jan 1946. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
The use of fabricated steel members to replace castings has been developed over the past ten years by this company which makes machine tools and grinding wheels This company claims that on their small quantities the price of the fabricated unit is only two thirds of the cost of the castings. This report states that the quality and technique employed are far ahead of anything done in England.

PB 15403. SIMS and RADCLIFFE. Ernst Carstens, Hamburg. (BIOS Evaluation Rept 341) Jan 1946. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
These types of wood working machinery were manufactured double and triple drum sanders, double disc sanders, and belt sanders. Number employed before the war was 60, and during the war 30. Output prior to the war was 100 drum sanders and 200 double disc sanders per year. This information was obtained from visit to plant, Aug 10, 1945.

PB 15397. SIMS, and others. Naxos Union, Frankfurt Waldohmidstrasse 43 & Fechenheim. (BIOS Evaluation Rept 333) Jan 1946. 2 p. Price: Microfilm - 50¢ - Photostat - $1.00
The main interest here was grinding equipment. The plant at Frankfurt consisted of a machine shop having approximately 40,000 sq. ft. area equipped with engine lathes, planers, boring mills, turret lathes, milling machines, shapers and grinders. They also have a heavy machine shop at Fechenheim with an area of 1,000, 000 sq. ft. Before and during the war these plants made crankshaft grinding machines, shaft grinders, surface, cylinder and internal grinders with planetary motion. In 1945 they employed 700 in grinding wheel department, and 800 in machine building department.

PB 15159. SPOFFORD, WM. P. Report on alternating current deck winch built for MS'S Ostmark U Steiermark for installation at Fried. Krupp. Germaniawerft A.G. Kiel. (FIAT Final Report 101) Aug 1945. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report is based on examination of two winches and interview with chief electrical engineer of company. The driving motor of the cargo winch is a pole changing ring wound motor with one 4 pole and one 10 pole winding; the low speeds being provided by the 10 pole, 565 RPM syn. speed at 47 cycles and high speed with the 4 pole - 1410 RPM syn speed. For speeds below 565 RPM the rotating field of the 10 pole winding is in one direction and the rotating field of the 4 pole in the opposite direction, and the two connected in this bucking condition. Diagram described is not included in report. Name plate data of winches are given.

PB 17543. SWARTZ, CARL E. and RAGAN, FRED H. The sleeve bearing industry of Germany. (FIAT Final Rept 666) 1945. 53 p. Price: Microfilm - $1.00 - Photostat - $4.00
The methods used in Germany for the production of sleeve bearings during the war were similar to those used in the U. S. Some refinements in process were noted which improved quality, increased production and saved on raw materials. A few alloys were used, less than those used in U. S., and the quality of the product seems to have been inferior to American items. Diagrams are included and the appendices contain a list of German technologists and a list of German plants.

PB 15940. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured enemy equipment: Drills, rock, electric, Bosch, w/1 resistor, German. (Rep 2947) Oct 1945. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00
The unique feature of the subject tool is the method used to transform the rotating motion of the electric motor to

reciprocating motion suitable for impact tools without imposing excess shock on the electric motor. Impact tools have been predominantly pneumatic because of their dependability. The Technical staff of the Engineer Board recommended that the information on this tool be made available to manufacturers of portable electric tools for their consideration for future commercial development. Photographs are included.

PB 15456. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured German filter, water, pressure, sand type, skid-mounted (Reg 2463) Mar 1945. 7 p. Price: Microfilm - 50¢ - Photostat - $1.00
The subject unit consists of a centrally located cylindrical sand column surrounded by a water storage and reaction chamber, mounted on three steel legs, and equipped with hand pump, valves, and manifolding. Two chemical kits containing operating chemicals are mentioned in the operating instructions, but were not received with these units. This equipment is obviously intended for semi-permanent use in purification of surface waters, relying upon chemical sterilization rather than actual removal of suspended material from the water. Diagram, photograph and translation of operating instructions are appended.

PB 15457. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. German centrifugal gasoline-engine-driven water pump, Garvens type SJ84. (Reg 2468) Apr 1945. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report covers examination and testing of this captured German centrifugal pump. The photograph attached shows the pumping unit with cover, strainer and small parts. Operation of the pumping set indicates that the unit is primarily a high volume water pump with relatively low discharge pressures, used for general purpose pumping of surface waters. A constant speed characteristic graph is also attached. The unit is not self-priming.

PB 15459. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. German deep well plunger pump, electrically driven. (Reg 2473) Apr 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report covers examination of a German deep well plunger pump. A German instruction manual "Montagevorschriften und Betriebsanweisung fur Festungspumpwerk 'TK 50' in Anordnung nach Zeichnung Nr 22.510/B (Druckkesselbetrieb)" was received with the pump, but is not attached here. The pump is well constructed and similar in design to small plunger type deep well pumps manufactured in the United States. Photograph shows equipment as received.

PB 15942. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. German deep well submersible pump, electric motor drive, (Garvens, type GB33/x JKK70, Fa Nr 47316) (Reg 2938) Aug 1945. 6 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report covers examination and testing of a "Garvens" submersible pump comprised of a 7 HP electric motor mounted below a 10 stage vertical centrifugal pump to which it is directly connected. Accessories include relief valves, air chamber, electric switches, well cover, pipe clamps, cable clamps, flanges, etc. Photographs and a graph of head-capacity characteristics are given.

PB 15976. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured equipment: Refrigeration unit - German. (EB Reg 2902) Aug 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
The equipment constitutes a refrigeration and ice-making unit and consists of a sulphur dioxide condensing unit, expansion valve, evaporator coils, ice trays, and the necessary piping and valves as shown in the schematic flow diagram. The unit was designed for strict manual operation

PB 15522. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign equipment: Festo gasoline chain saw and sharpener (German). (Reg 2856). Jul 1945. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
The Festo chain saw is a portable, gasoline-powered manually operated machine, consisting of a single cylinder two-cycle engine, transmission, centrifugal clutch, cutter guide bar equipped with an endless cutting chain and a tailstock oiler which automatically pumps and meters the lubricant to the cutting chain. Apparently each Festo saw set is equipped with a manually operated gasoline powered chain sharpener. Photographs are included and weight and characteristics of engine, sawing mechanism and tailstock are given.

PB 15436. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign equipment: German hand-operated spray pump. (Reg 2403) Mar 1945. 2 p. Price: Microfilm -50¢ - Photostat -$1.00
The subject item is a shop-made, hand-operated sprayer pump, weighing approximately 50 pounds. The unit consists of a high-pressure cylinder made of 2-inch pipe, pump cylinder, pump handle and linkage, and wooden base and stand for holding the pump in an upright position. The pump has a short suction hose fitted with a strainer. Included with the pump is a 4-foot spray bar fitted with a cut-off valve and a solid stream type nozzle with a discharge rate of approximately 0.5 gpm. The hose, connecting the pump to the spray bar, was not received. Photograph is included.

PB 15523. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS ENGINEER BOARD. Evaluation report of German holdfasts. (EB Reg 2859) Aug 1945. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report covers two standard German 6-picket type holdfasts used in bridging operations. These same type holdfasts were used by the Germans in all of their bridging equipment and were referred to as anchor plates. They are essentially wide-flanged "I" beams with alterations to facilitate their use as holdfasts. The holdfast of later design (EB Reg 2859) is 40 percent lighter in construction without any apparent effect on its holding power. Load tests were conducted to determine the efficiency of the holdfasts, and results are shown on the graph attached. Photographs are also included.

PB 15472. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report on German magnetic oil switch, R908W-18. (Reg 2493) Apr 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
The subject equipment is a three phase motor starting switch made by the Siemens Schuckert Company, Berlin. The contacts are of the wiping type, are silver plated, and operate in oil. Unusual features are the use of oil in the switch, the light weight, and the hinged connection to the movable contacts. Photograph, which may not reproduce well, is included.

PB 15475. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. German sludge pumping unit, diesel-engine-driven. (Reg 2499) Apr 1945. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00
This report covers examination and testing of a captured, trailer-mounted German sludge pumping unit driven by a single-cylinder Diesel engine. Nameplate on pump reads: "Freidrich Koster, Maschinenfabrik, Heide in Holstein, Niagarapumpensatz-100 S/5D, Fabrikzeichen u Nr. P23444/4." This unit is presumed to be employed for pumping sewage, mud, or other fluid material containing a large percentage of suspended solids from a sump to a suitable disposal point. Graph of test data and photograph of pump are included.

PB 15470. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. German water pumping unit, skid-mounted, flat belt connected, 4HP Dmtz gasoline-engine-driven, piston type reciprocating pump. (Reg 2488) Apr 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00

Pumps of this type are commonly used for heavy duty high pressure pumping of clear water where constant delivery regardless of discharge pressure is desired. This equipment cannot be classed as portable but was probably intended for a specific use in a semi-permanent application. The German pump, in capacity and physical size, falls between the Corps of Engineers' pump, horizontal duplex piston, steam driven, 250PM, and the Corps of Engineers' pumping station, 4-inch, portable, gasoline-engine-driven, 220 bbl. per hour vs. 250 lbs. per sq. in. pressure. Photograph is included.

PB 20807. WEINGARTEN, MASCHINENFABRIK, WÜRTTEMBERG. Catalog. n.d. 227 p. Price: Microfilm - $2.50 - Photostat - $16.00
This report is Exhibit 32, of PB 20808, "Deep drawn steel (stampings) and steel sanitary ware", by W.W. Galbreath. PB 20808, together with this report and PB 20806 (Exhibit 31), replaces PB 18534, listed on page 935 of this bibliography. The catalog describes stamping presses and dies for forming heavy metal products, automobile bodies, etc. The catalog is primarily in German although there is some material in French and English. Numerous photographs of machinery are included.

Hungarian

PB 15977. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Evaluation report. Hungarian outboard motor. (EB Rep 12000) Jan 1945. 6 p.
Price: Microfilm - 50¢ - Photostat - $1.00
Evaluation report of a 4 cycle, 4 cylinder direct drive unit for both raft and boat propulsion. The engine's output is approximately 38 hp at 3000 rpm. Photographs are included.

United States

PB 7828. DOSY, CAPTAIN and SMITH, R. LEON. Fuel injection system for (jet propulsion) gas turbine engines. (AAF Tech Intelligence Rept No. I-72). Aug 1945. 5 p.
Price: Microfilm-50¢ - Photostat-$1.00
German developments in fuel injection systems for jet propulsion on gas turbine engines. All seemed to agree that the problem was of continuous uniform spray at all altitudes. All of the men recognized the advantages of a plunger pump and individual tubing for each nozzle, so each could act as an independent unit, not affected by the condition of any other nozzle unit. Some testing was done on a dual plunger pump.

PB 15617. LaMER, VICTOR K. and HOCHBERG, SEYMORE. The Hochberg-LaMer aerosol generator: Progress rept to Oct 31, 1944. (OSRD Rept 4901) Apr 1945. 29 p.
Price: Microfilm - 50¢ - Photostat - $2.00
This report gives the design, construction and theory of operation of the generator which has proved most successful for the production of drop sizes of radius 1 to 10 microns, the investigation being made in connection with insecticide dispersal. Appended are list of parts, flow diagram, diagrams and graphs. This is a progress report under contract with Columbia University.

PB 16601. MARTIN, T. J. Forces developed by miscellaneous pressure devices used in gluing. (AAF ATSC Memo Rept ENG-56-M4684, Add. II) Mar 1944. 5 p.
Price: Microfilm - 50¢ - Photostat - $1.00
Tests made of a collar clamping device used by an aircraft plant to apply pressure in gluing operations on wooden parts are reported herein. It was found that pressure distribution was not uniform. Table of data and two photographs are included.

PB 16408. PETERS, C. G. Investigation of small diamonds dies: Progress rept from Feb 1 to Sept 15, 1943. (War Metallurgy Research Committee W-63) Oct 1943. 12 p. Price: Limited free distribution; thereafter, microfilm - 50¢ - photostat - $1.00
This report lists the following accomplishments: Wire and die plants visited; testing of diamonds was seen to be done by the use of the polarizing, x-ray, and binocular microscopes, and the measurements of die size and shape by the micrometer microscope and by interferometer measurements of wire drawn through the die; the dies which were tested and their manufacturers; the samples of diamond powder tested and their makers; and the development at the diamond die laboratory. The work was done by the National Bureau of Standards. Photomicrographs are included. For other reports, see PB 16402-16407.

PB 16407. PETERS, C. G. and INSLEY, HERBERT. Investigation of small diamond dies: Progress rept from Feb 1 to Oct 15, 1943. (War Metallurgy Research Committee W-67) Nov 1943. 18 p. Price: Limited free distribution; thereafter, microfilm - 50¢ - photostat - $2.00
This is a report under contract with the National Bureau of Standards, in its diamond die laboratory, and is concerned with the relationships between the characteristics of the diamond die, the amount of wire that can be drawn through it, and the quality of wire produced. Photomicrographs are included. For other reports, see PB 16402-16406 and PB 16408.

PB 16402-16406. PETERS, C. G. and others. Investigation of small diamond dies. Final Rept: Parts I-V. (War Metallurgy Research Committee Repts W-77, 99, 100, 107, 144) Jan-Sep 1944. Price: Limited free distribution; thereafter.

PB no.	W-no.	Date	Pages	Micro	Photo
16406	77	Dec 1943	15	50¢	$1.00
16405	99	Apr 1944	9	50¢	$1.00
16404	100	Apr 1944	6	50¢	$1.00
16403	107	Apr 1944	25	50¢	$2.00
16402	144	Aug 1944	30	50¢	$2.00

After the first investigations by the National Bureau of Standards at the request of the War Production Board, further investigation was accomplished by the Bureau of Standards under the administration of the War Metallurgy Committee, National Research Council, as WPB Research Project MRC-53. The purpose was to improve the processes for manufacture of diamond dies, especially those used in production of fine wire. The following was set as the program to be accomplished: Factory inspection, diamond and die test methods die testing, measurement of wire diameter, and diamond powder tests and specifications. The parts of this final report are entitled as follows: Part I - Methods for microscopic examination of diamond dies and powders; Part II - Interference method for measuring the diameter of fine wire, by C.G. Peters and W.B. Emerson; Part III - Electrical method for spotting diamond dies; Part IV - Methods of testing, results of examination, and standard specifications of diamond powders; and Part V - Methods for producing diamond dies. With the drilling method described it is believed that a good quality fine diamond die from 0.0004" to 0.0015" in size can be produced with considerable saving over the established mechanical methods. Photographs and diagrams illustrate the report. For progress report from Feb-Sep 15, 1943, see PB 16408; for progress report from Feb-Oct 15, 1943, see PB 16407.

PB 17540. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Mobile rotary well-drilling rig. Ground water development. Appendices. (Rept 684-B) Mar 1942. 146 p. Price: Microfilm - $1.50 - Photostat - $10.00
In connection with the securing of an adequate water supply for troops and military establishments in the field, it is desirable to secure water from deeper water-bearing formations by the use of some rapid well-drilling device such as a mobile highly portable, compact water well-drilling unit. In commercial practice, 2 main types of well-drilling equipment are in regular use: the percussion type well-rig and the rotary type well-rig. This report describes and discusses tests of a pilot-model rotary drill. Equipment used is listed and logs of tests are given. Photographs are included. Many parts are deleted. See Engineer Board Rept 684A (PB 17537) for discussion of Rotary Well Rig.

PB 17537. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Mobile rotary well-drilling unit, ground water development. (Rept 684-A) Mar 1942. 20 p. Price: Microfilm - 50¢ - Photostat - $2.00
In considering the equipment to be developed for securing deep ground water for troops in the field, it was assumed that the thing to be accomplished was the development of well drilling apparatus which would secure and deliver the water in the least amount of time and with the smallest total weight of equipment and supplies, including casing, screens, and pumps. It was found that a Rotary Well Rig capable of drilling a well of 4 to 5 inch diameter, to a maximum depth of 1000 feet, with arrangements for air-lift pumping of the initial water supply, offered the best solution in a majority of instances, though there were geological conditions under which a cable tool drilling rig would be required for satisfactory performance. The Rotary Well Rig offers equipment which can be used for taking cores, putting in footings with expanded bottoms, preparing foundations, making demolition borings, jetting wells, and for other special services. Many parts of this report have been deleted. See Engineer Board Rept 684-B (PB 17540) for appendices describing tests of a pilot model rotary drill.

PB 13373. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Rod, earth, blast driven, T-1. (Rept 818) 1944. 19 p. Price: Microfilm - 50¢ - Photostat - $2.00
This report covers an investigation to determine the possibility of using the blast driven earth rod, T-1, for making holes for log obstacles or for cratering and demolition charges and whether such equipment can do the work accomplished by the power earth auger adequately enough to replace the power earth auger. Tests show that by using a 270-gram charge of smokeless powder FNH-M2, the rod can be driven six feet into ground up to and including the hardness of shale. Holes in ground of this type can be enlarged up to 12 inches in diameter using up to 15 strands of detonating cord. It is recommended that the rod be issued to Engineer troops as an additional piece of equipment, but not to replace the auger. Diagrams and photographs are included. Results of tests are tabulated. Many parts are deleted.

PB 15969. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Tools, pipe cutting and grooving, size ¼" - 6", 2 w/case, British. Jul 1945. 5 p. Price: Microfilm - 50¢ - Photostat - $1.00
The British tools utilize one cutting die as compared with American tools which have four cutting dies. Both are hand operated, but American tools, employing a ratchet type gear controlled stock, are more efficient. Photographs are included.

PB 16109. WATERS, C. F. Second report on dolly, semi-trailer converter, modified, test of Twelfth report on Ordnance Program 5536 and Second report on Ordnance Research and Development Center Project 4107. (Aberdeen Proving Ground Rept 211-7) Aug 1945. 37 p. Price: Microfilm - 50¢ - Photostat - $3.00
The fifth wheel dolly covered in this report of test was developed by the office, Chief of Ordnance, Detroit for use by the Transportation Corps, to convert the semi-trailer, 3½ ton, stake and platform, to a full trailer for the purpose of carrying heavier payloads. The dolly is of the underslung hinged drawbar type possessing special coupling and uncoupling features, which are superior to that of the solid type draw-bar dollies. It is equipped with 7.50 x 20 dual tires. Objectives of the test were to determine if the modification of raising the hinge of the dolly drawbar would correct the unbalanced fifth wheel reaction of the dolly, as discovered during the initial test conducted with the pilot model dolly. The test is described in detail. Appendix A contains nine photographs of the dolly, Appendix B eleven memorandum reports, and Appendix C correspondence.

METALS AND METAL PRODUCTS

German

PB 12666. BRITISH INTELLIGENCE OBJECTIVES SUB-COMMITTEE. Preliminary reports, list no. 89. 1945. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Summaries, in tabular form, of reports 1842 - 1853, giving name of person or plant visited, location, principal product, condition of plant, etc.: Karl Engels, Solingen (safety razors); Theo. Goldschmidt, A. G., Essen (detinning plant); Hugo Beckmann, Solingen-Holigs (cutler); Robert Klaas, Solingen-Ohilgs (cutlery); Heinrich Becker & Co., Solingen (cutlery); Wilhelm Schroeder & Co., Iudenscheidt (alloy castings); Losen Hausen Werke, Dusseldorf (mechanical testing machines); H. Maihak A.G. (testing equipment); Hochtief A.G. Vormals Gebr. Helfman, Essen (contractors' plant); Fritz Schmelenbeck, Hagen-Haspe (scrap metal); Dynamit AG, near Hannover (shell filling); Gebruder Hohler, Dusseldorf (laminated springs).

PB 16720. COLCLOUGH, T. P. Developments in the German iron and steel industry, Ruhr and Salzgitter areas. (CIOA Rept File XXXII-119, Item 21) Jun 1945. 146 p. Price: Microfilm-$1.50 - Photostat-$10.00
A preliminary report on the German steel industry by a British investigating team. Damage by bombing was relatively small and large scale production can be resumed as soon as raw materials and transportation are available. The outstanding development of the war period was the building of the Hermann Göring Works at Watenstedt, which represents a manufacturing unit completely integrated from coal and ore to rolled product. War time developments in steel-making practice are described. Other topics discussed are: Manufacture of pig iron; rolling mills; forgings; steel castings; centrifugal casting of gun barrels; special steels; gun steels; armor steel; ferro-alloys and alloy scrap; iron powder and sintered driving bands; tungsten carbide and hardmetal; and steel works building. Six appendices are attached on various German metallurgical practices, namely: (1) Ore production at the Hermann Göring Works, Watenstedt; (2) recovery of vanadium from low grade iron ores; (3) manufacture of low-nitrogen steels; (4) carbureting of coke oven and mixed gases; (5) centrifugal casting of gun barrels; (6) metallurgical problems arising from use of low-grade ores at the Hermann Göring Works, Watenstedt. (12 other appendices listed were not prepared for reproduction at time report was printed.)

PB 16715. COLCLOUGH, T. P. Heat-resisting and corrosion-resisting alloy steels, F. Krupp A.G., Essen. (CIOS Rept, File XXXI-44, Item 21) n. d. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
Much of the development work at Krupp during the war had been directed towards economy in the use of alloy elements in short supply and provision of substitute materials necessitated by the changes in the supply position. Various ferritic alloy steels were developed using substitute elements. Considerable use of a manganese-chromium steel was made for service at temperatures up to 900°C in air. A general statement is given of the furnaces and processes used by Krupp. Report also contains notes on hair line cracks occurring in high tensile steels and how they can be controlled. Appended to the report is the following information (in German): Krupp data on Tinidur; Krupp data on Chromadur; Krupp data on Vanidur; data on heat resisting steels and steel castings and on corrosion resisting steels.

PB 16103. DEISINGER, W. Herstellung und Eigenschaften von aluminiumkabelmänteln. (Production and properties of aluminium coating on cables.) (Reprint from "Metallwirtschaft", Vol. 18, 1939.) (Supp to FIAT Rept 516, PB 3478) 6 p. Price: Microfilm-50¢ - Photostat-$1.00
The paper discusses the deficiencies of lead coatings on cables, metals capable of replacing lead in coatings, describes the industrial methods of coating of cables with aluminum and compares them with other methods, and ends with the description of properties of aluminum coats and their effect on cable industry.

PB 14777. MICHINGER, A. and others. Bericht über die Gemeinschaftsarbeiten der Arbeitsgruppe Erschütterung, Stoss und elastische Wellen. (Report on the activities of the work group "impact, shock and elastic waves") (Kaiser Wilhelm Institut für Eisenforschung Metallforschung) (ALSOS Mission, Hoyt File 92) May 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This manuscript report presents an account of the work done by the group of four men entrusted by the Institute to investigate the behavior of matter under rapidly changing strains resulting in elastic and plastic deformations. It mentions that six papers on this subject are attached. These appear to be missing.

PB 14569. ENGLISCH, C. Kolbenringe. (Piston rings). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A-21). (ALSOS Mission, Klotter File 11C). Oct 1939. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
This report deals with the theory of self-sealing piston rings and the pressure in between the ring and piston. Grey-cast pig iron as the principal material for aircraft piston rings receives special attention. The breaking-in of self-sealing piston rings on hard-metal cylinders and various phenomena connected with their use are discussed. Bibliography, drawings, graphs, and photographs are included. In German.

PB 20808. GALBREATHE, W. W. Deep drawn steel (stampings) and steel sanitary ware. (FIAT Final Rept 445) Nov 1945. 341 p. Price: Microfilm - $3.50 - Photostat - $23.00
This report, together with PB 20806 and PB 20807, replaces PB 18534, listed on page 935 of this bibliography. It was written under the auspices of the Metals and Minerals Section of the Technical Industrial Intelligence Committee. It covers deep drawing of steel and porcelain enameled sanitary ware. The work is divided into the following sections: (1) Bonder drawing process; (2) Extrusion of steel; (3) Double draw ring; (4) Cast tool steel die sections; (5) Hot press work; (6) Collis Metallwerke G.m.b.H., Westhausen and Nordlingen; (7) Friction drive screw press; (8) Extruded bronze lined tubing (9) Labor - labor rates - labor saving devices and material handling equipment; (10) Plant layouts - safety devices, etc.; (11) Coating cast iron with bronze; (12) Press plants - bomb destruction; (13) Vereinigte Deutsche Metallwerke, Offenbach and Frankfurt; (14) Vereinigte Deutsche Metallwerke, Heddernheim; (15) Moveable beds - heavy presses; (16) Trade associations; (17) Kabell und Metallwerke Neumeyer, Nürnberg; (18) Steel sanitary ware; (19) Frit manufacturers. Thirty-four of the thirty-six exhibits to illustrate this report are bound with it. They consist of diagrams, advertisements, patents, etc., for the steel articles. For Exhibit 31, see PB 20806, and for Exhibit 32, see PB 20807.

PB 17369. GUTEHOFFNUNGSHÜTTE, STERKRADE. Geschweisste Blechträger. (Welded plate girders). (MIS VII 68a22-7001696) 1942. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This document reports the results of strength tests on a welded plate girder undertaken to sustain the claims of the German patent DRP Nr. 609886. Photos and drawing.

PB 16104. HAUFF, P. and others. Aluminum als Baustoff für Kabelmäntel. (Aluminum as material for cable coating) (Reprint from "Siemens-Zeitschrift", Vol. 19, 1939) (Supp to FIAT Rept 516, PB 3478) 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The paper reviews the development of lead coating of cables, points out the shortcomings and disadvantages of lead as cable-coating material, and describes the methods of coating the (cables with aluminum as developed in the Siemens-Schuckert, A.G. Kabelwerk.

PB 16674. POLLITZER, WALTER M. Minutes of the meeting of the Technishce Ausschluss of the I. G. Farbenindustrie held on Feb. 5, 1941. 1941. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
The following two-step electrolysis was considered best for the precipitation of zinc as zincoxide:

I. $x\,ZnCl_2 + y\,Hg \longrightarrow Zn_xHg_y + Cl_2$

II. $Zn_xHg_y \longrightarrow x\,Zn + y\,Hg$

This process makes it possible to utilize economically complex ores and may remove zinc blende (Zn S) from its dominating position in the production of zinc.

PB 16776. RECTOR, W. H. German aluminum alloys. (AAF Eng Div Memo Rept ENG-M-56-4239) Mar 1943. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Metallurgical analysis and physical tests to determine the qualities of 8 German aluminum alloys, and their various treatments. Tables of chemical analysis, spectrographic analysis, physical properties of tensile specimens, and 6 photomicrographs are given.

PB 14546. RÜHL, K. Die Gestaltfestigkeit von Bauteilen. (The strength of formed structural elements) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik II A 4) (ALSOS Mission, Klotter File 11 B.) Apr 1939. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The question of strength of formed structural elements, such as rods, beams, etc., is discussed from following view points: The problem hinges on the fact that strength as determined by normal methods, and generally used elementary calculations do not permit the anticipation of behavior of such elements as parts of construction because they are frequently subject to peak stresses that elude elementary expectations. In such cases the strength limits change, apparently even under static stress. This paper deals with such instances under consideration of multiaxial stresses, and contains an applicable bibliography.

PB 20806. SCHULER, L., A.-G., Goeppingen, Germany. Handbook for economical sheet metal working and pressing, 3rd enlarged edition. 1937. 429 p. Price: Microfilm - $4.50 - Photostat - $29.00
This report is exhibit 31 of PB 20808, "Deep drawn steel (stampings) and steel sanitary ware" by W. W. Galbreath. PB 20808, together with this report and PB 20807 (Exhibit 32), replaces PB 18534, listed on page 935 of this bibliography. The book is in English, but some diagrams bear German captions with the English equivalents of terms placed below the diagrams. The first part of the book is designed to give practical advice in the wide field of sheet metal and metal working. The second part of the book is a catalogue of all the Schuler machines made for the sheet metal and pressing industry.

PB 14760. WIEMER, HANS. Kurze Zusammenstellung der Arbeiten des Kaiser-Wilhelm Instituts für Eisenforschung zur Pulvermetallurgie des Eisens (1941 bis 1945) (Brief review of work done by the Kaiser Wilhelm Institute for Iron Research on powder metallurgy of iron. 1941-1945) (ALSOS Mission Hoyt File 29) May 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This manuscript report sums up the subject matter under the following headings: Preparation of powdered iron, mechanical and physical properties of powdered iron in dependence on its structure, influence of additives normally present in iron on properties of the iron powder, carbon containing iron powder, sintering experiments, evaluation of experiments.

PB 14761. WIEMER, H. Untersuchungen über den Einfluss kleiner Gehalte der üblichen Stahlbegleitelemente auf die Eigenschaften von Sinterweicheisen und ihre Beeinflussung durch die Sinteratmosphere. (Influence of small quantities of normal iron components on properties of sintered soft iron and the manner in which they are affected by the sintering atmosphere)(Kaiser Wilhelm Institut für Eisenforschung) (ALSOS Misson, Hoyt File 30) n.d. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The influence of oxygen, sulphur, phosphorus and nitrogen is briefly discussed in this report.

United States

PB 6413. ALTMAN, GEORGE G. Conference on the preparation and testing of filleting and brazing alloys. (AAF. ATSC Memo Rept. EXP-M-52-590-57-11). Jan 1942. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A conference between the applied Science Laboratory, University of Cincinnati, and Cincinnati Steel Heat Treating Co. was called to discuss a quick strength and wettability test for a brazing and filleting alloy developed by P.R. Mallory Co. It was recommended that the following test program be followed: a speciman, tack welded on the edges and tilted to allow the brazing or filleting alloy in the shape of wire to flow between the plates be used for the test. Then the speciman pulled to note the distance the alloy has penetrated between the plates, showing viscosity of the alloy. The load distributed over the welted area gives an indication of bonding strength. A piece of strap should be bent to a 30°V and the ends closed, and the piece supported vertically in the furnace and run simultaneously with the first test. The shape and size of the meniscus indicates the wettability of the alloy. It is recommended that specimens of all alloys for use in brazing or filleting any hollow steel blades, together with the proper flux, be sent directly to the University of Cincinnati Laboratory for testing, so that comparative data will be available immediately.

PB 16759. BOEGEHOLD, A. L. and WEINMAN, E. W. Heat treatment of National Emergency Steels for use in tanks, combat cars, gun mounts and other ordnance materiel (OD-115): Progress report, Apr-June 1943. (OSRD Rept 1768) 1943. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
This is a first progress report of work undertaken by the Research Laboratories Division, General Motors Corporation, to June 30, 1943. It consists of a statement regarding the scope of the project and a general discussion of procedure and equipment. The investigation was initiated to determine accurate cooling rates at 1300°F between center and surface of various size rounds and plates when heated under different conditions of temperature and atmosphere and quenched in different media at two different velocities and at one or more temperatures in order to obtain a more accurate correlation of cooling rates of rounds and plates with those of the standard end-quenched hardenability bar.

PB 13529. BROWN, F. E., and others. Effect of vanadium as an alloying element in corrosion-resisting steel welding electrodes (Austenitic type, covered). (Indus. Test Lab, Navy Yard, Philadelphia. Rept 4013) Dec 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report on Bureau of Ships Welding Test 309 to determine effect of vanadium as an alloying element in Grade V electrodes from Electro-metallurgical Co. Special treatment steel and medium steel were used as the base metals. Table 1 gives chemical composition of electrode core wire and deposited weld metal; table 2, results of tensile tests of all-weld-metal 0.505" specimens; table 3 results of test of 1" x 1" transverse tensile specimens machined from 60¢ S.T.S. restricted groove assemblies; table 4 results of crack sensitivity test. The average values of tensile strength and elongation from table 3 are plotted against the percent of vanadium in the deposited weld metal. The point to point graphs indicate the actual values in each case, and the smooth curves indicate the trend. Results of tests considered inconclusive.

PB 16876. CHAPMAN, M. C. Development of armor welding electrodes: Tests on Coast Metals, Inc. electrodes. Progress rept. (OSRD Rept 918). Oct 1942. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The tests described in this report were conducted with the cooperation of Coast Metals, Inc., to determine the properties of deposited weld metal containing approximately 5% chrome, 5% nickel, and 1% carbon. The weld metal was found to be substantially austenitic. However, it was hard and brittle, regardless of the type of coating used. The author did not wish to discourage further attempts in this direction and strongly recommended that more work be done with alloys in this analysis range and every possibility explored. Photographs.

PB 13829. COVER, GERALD M. Supplementary investigation on increased blast furnace capacity. Final report, Jan 1944-Sep 1945. (OPRD Project 123) Sep 1945. 124 p. Price: Microfilm-$1.50 - Photostat-$9.00
This report covers the operation of D.P.C. Blast Furnace Plancor 257 at normal top pressures of about two pounds and at top pressures of approximately ten pounds. The effects of high top pressure operation were studied and compared with low top pressure, and data presented. Along with the experimental work furnace operating data and certain miscellaneous data were collected, compiled, and analyzed. If high top pressure operation is compared with low top pressure operation, more pig iron was produced, the furnace worked more smoothly with less hanging, slipping, and rolling, more iron within specification was produced, and less flue dust was made. No definite trend could be found as to the effect of high top pressures on solution loss. Flow diagrams of furnace operations, photograph of a continuous gas sampler, and tables and graphs of data are given. This investigation was carried out at the Case School of Applied Science.

PB 13823. COVER, GERALD M. Supplementary investigation on increased blast furnace capacity. Progress report, Jan 1-Apr 1, 1944. (War Metallurgy Committee Res Rept M-112) May 1944. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
This report covers so-called normal top pressure operation of DPC Blast Furnace Plancor 257. Gas analyses and small temperature measurements are reviewed, and their applications shown. Certain furnace operating data are given, and comparisons are made. Future work is outlined for the next period when higher furnace top pressures are to be imposed. Effects of these higher pressures will be observed, and results will be compared with normal operation. A bibliography is appended. A photograph of a continuous gas sampler and tables and graphs of data are included. This investigation was carried out at the Case School of Applied Science.

PB 16467. CROSS, H. C. and SIMMONS, W. F. Heat-resisting metals for gas turbine parts (N-102). Progress report, September 1, 1943 to March 15, 1944. (OSRD Rept 3661). 191 p. Price: Microfilm-$2.00 - Photostat-$13.00
This report includes the high temperature test data obtained by the twelve cooperating laboratories in this program on the development and testing of heat-resisting alloys for gas turbine parts. Experimental work is described and the results shown in tables and graphs follows: Stress-rupture tests at 1300°, 1350°, 1500°, and 1600°F; creep tests at 1350°, 1500° and 1600°F; high temperature fatigue tests; and other tests. Table I shows the composition of the 69 alloys supplied for the tests. Table II shows the source and method of fabrication of these alloys. Photographs.

PB 15932. CUNNINGHAM, D. M. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures. Part II A. Guerin forming straight flanges in 75 S-W, Final Report, October 14, 1944. (OPRD Rept M-457). Nov 1944. 48 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$4.00
To evaluate the effect of aging at atmospheric temperatures, ti es up to one month. For short times up to about 4 hours the critical value of (R/t_o) remains fairly constant; longer times result in rapid increase. At 1000 hours the thicker sheet continue to exhibit a small rate of increase of $(R/t)_{cr}$. Increase in the critical value of (R/t_o) and in the springback as a function of aging time are the result of a decrease in the local strain at fracture and an increase in the yield stress with aging time. The best straight flange formability of 75 S-W is obtained within about four hours after heat treatment. Data included constitute a basis for design and tooling. Bibliography, tables, formulae, graphs and diagrams are given. This is a final report under contract with the University of California; it supplements PB 15912.

PB 16465. EDLUND, D. L., and OBERLE, T. L. Heat resisting metals for gas turbine parts (N-102): Experimental alloys for high temperature service; Final report, Jan 21, 1946. (OSRD Rept 6564) 1946. 60 p. Price: Microfilm-$1.00 - Photostat-$4.00

This is a report of an exploratory program undertaken, by the Vanadium Corporation of America, with the object of developing alloy compositions superior to metal currently being used in high temperature parts of turbo-superchargers and gas turbines. Hardness readings at 70° and 1500°F. were taken on more than 200 experimental alloys. In general, alloys in the 1500°F. hardness range of 240 to 300 Brinell containing 15 to 25% W, 0.5 to 2% B, about 30% Cr, and the balance equal amounts of Ni and Co have the greatest possibilities of the alloys tested. Numerous tables, graphs, and microphotographs are included.

PB 15937. FLANIGAN, ALAN E. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part I. Elevated temperature variable speed tensile test, Final report. June 8, 1944. (OPRD Rept W-122). Aug 1944. 193 p. Price: Limited supply for free distribution; thereafter, microfilm-$2.00 - photostat-$13.00

Applications of tensile data in predicting formability have been discussed for operations in which the limiting conditions are those of simple tension, and for operations in which more complex stress systems are encountered. In the latter case, methods have been described for calculating the uniform and local ductilities under combined stresses. The tensile properties influencing formability have been determined for fifteen aluminum alloys at temperatures suitable for elevated temperature forming. The effects of strain rate and exposure time have been noted. Complete load-extension diagrams have been obtained for each condition. These data make possible the derivation of true stress-true strain curves on the assumption that the latter are linear in the range between the limit of uniform elongation and fracture. An increase in the local elongation in simple tension, and a decrease in uniform elongation, is noted for all alloys. Strain rate is found to have an effect on tensile properties. Tables, graphs, diagrams, photographs and 66 references are included. This is a final report under contract with the University of California.

PB 15916. FLANIGAN, A. E., and others. Study of the properties of aluminum alloy sheet at elevated temperatures. Part XII. Stress rupture and creep tests in tension at elevated temperatures: Final Report. (OPRD Rept W-216) Jun 1945. 52 p. Price: Microfilm-$1.00 - Photostat-$4.00

Report of experimental work at the University of California in which five high strength aluminum alloy sheet materials were tested at temperatures from 94°F. to 375°F. with fracture times ranging from several minutes to 1000 hours. In each test the following data were obtained: fracture time, elongation at fracture, creep rate, creep intercept and the complete strain versus time curve. Tables and graphs are included giving summaries of stress-rupture and creep test data for the five materials tested; alclad 24S-T, alclad 24S-T81, alclad 24S-T86, alclad 75S-T, and clad R 301-T. Photographs of specimens of fractures and photographs and diagram of apparatus are also given.

PB 15924. FLANIGAN, ALAN E. and others. Study of the properties of aluminum alloy sheet at elevated temperatures: Part XII. Stress rupture and creep tests in tension at elevated temperatures. (Progress report, March 15, 1945). (OPRD Rept W-185). Mar 1945. 31 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$3.00

Apparatus has been constructed to allow the stress-rupture and creep testing of 24 sheet specimens simultaneously. Data obtained from tests in progress are summarized and show the effects of temperature and stress level on fracture time and creep rate. Stress rupture and creep are important design factors for temperatures above 212° F. Permissible design stresses are probably lower than indicated in short time tensile tests. Bibliography, tables and graphs are included. This is a progress report under contract with the University of California.

PB 15913. FINCH, DAN M. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part VI. Deep drawing boxes, Final report. July 1, 1944. (OPRD Rept. W-129). 1944. 51 p. Price: Limited supply for free distribution; thereafter, microfilm-$1.00 - photostat-$4.00

The results obtained for a limited number of alloys at 70°F and 450°F, illustrate the advantage of deep drawing box type parts of aluminum alloys at elevated temperatures. The improvement in drawability indicates that the application of this technique to the drawing of parts from standard alloys will result in a reduction in the number of press and anneal operations required. This is a final report under contract with the University of California. Tables, diagrams, graphs and photographs are included. For additional alloys and temperatures tested see PB 15922.

PB 15911. FINCH, DAN M. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part V. Deep drawing cups, Final report. April 20, 1944. (OPRD Rept W-111). 96 p. 1944. Price: Limited supply for free distribution; thereafter, microfilm-$1.00 - photostat-$7.00

Properties of several aluminum alloys were evaluated by means of deep drawing cylindrical cups. The effects of punch radius, die radius, clearance, hold-down load, die temperature and lubrication on drawability were studied. The data recorded will provide a guide for design, tooling and shop practice for deep drawing simple parts from aluminum alloys at elevated temperatures. Bibliography, tables, graphs and photographs are included. This is a final report under contract with the University of California.

PB 15925. FINCH, DAN M. and DORN, JOHN E. Study of the forming properties of aluminum alloy sheet at elevated temperatures. Dimpling investigation: Dimpling technique developed for high strength aluminum alloys. Progress report, February 15, 1945. (OPRD Rept. W-177). 1945. 40 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$3.00

The method given consists of direct resistance heating of the sheet in the dimple area by passing a large electric current directly through the dies and sheet material. The forming limits are thus extended without detrimental effects on the material. A description of the equipment and preliminary data on the evaluation of the technique are presented. Production features appear to be satisfactory. Charts, diagrams, graphs and photographs are included. This is a progress report under contract with the University of California. For final report of this study, covering evaluation of the present method, the heated die method and suitable machine settings, see PB 15914.

PB 16423. FREEMAN, J. M., and CROSS, H. C. Heat resisting metals for gas turbine parts (M-102): A metallurgical investigation of a large forged disc of low-carbon N-155 alloy. Progress report Aug. 4, 1945. (OSRD Rept 6427) 1945. 48 p. Price: Microfilm-50¢ - Photostat-$4.00

This report presents the results of a study of the properties at room temperature and at 1200°F., 1350°F., and 1500°F., of a large forged disc of low carbon N-155 alloy. The primary purpose was to determine the level of properties exhibited by this alloy in the form of large forgings of the type required for rotor wheels in gas turbines. Tables, graphs and photographs included.

PB 16608. HALL, W. B. The effect of lubricants on fretting corrosion (friction oxidation) in anti-friction bearings. (AAF Eng Div. TSEAM-M5192) Nov 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00

False brinnelling of antifriction bearings, subjected to vibratory or small amplitude oscillatory conditions has caused failure in many types of bearings, but its cause is unknown, and has been the subject of opposing opinions. Two 50 hour helicopter service tests were made to evaluate the effect of 3 AAF standard greases on R5A blade bearings. It was found that greases have a decided effect on such oxidation but they cannot be considered to offer complete protection. Postwar research on basic cause of friction oxidation is recommended. Bibliography of 4 items is included; also a rating table of 40 lubricants and 4 photographs.

PB 18604. HOPKINS, W. B. Chromium molybdenum X4130 steel. (AAF ATSC Memo Rept TSEAL 4-4229) Mar 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Report compares the fatigue strength in reversed bending for material in the form of rotating beam specimens with that in the form of flat cantilever beam specimens after various heat treatments. The specimens were fabricated from a 3/8-inch thick chromium-molybdenum steel (SAE x 4130) plate. The fatigue limits were lower for the material in the flat specimens than those for the round ones. The ratio of the fatigue limit of the flat to round specimens was nearly constant for Rockwell hardness of C26 and C34, but at C44 the ratio dropped approximately 24%. An appendix describes the test procedures, and there are graphs, a table, and photograph.

PB 15916. JELINEK, J. J. and others. Study of the forming properties of aluminum alloy sheet: Plastic flow in metals. (OPRD Rept. W-200). May 1945. 256 p. Price: Limited supply for free distribution; thereafter, microfilm-$3.00 - photostat-$18.00
A summary of the present status of the science of work hardenable metals is given. The plan of this report is to accept some of the idealized equations that purport to describe plastic phenomena. In particular the Lode equations relating stress to plastic strain are postulated. The von Mises' criterion is assumed, and a general kinematical analysis of large strains is developed. The intention is to construct a purely formal theory of plasticity, i.e. a theory which solves problems by means of mathematical equations alone. The theory as presented here outlines a procedure for finding all pertinent equations to the solution of plasticity problems. Bibliography, formulae, diagrams and graphs are included. This work was done under contract with the University of California. For earlier progress report see PB 15936.

PB 15927. JELINEK, J. J. and DORN, J. E. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part II C. Local plastic flow in bending, Final Report. December 15, 1944. (OPRD Rept. W-175). 1944. 42 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$3.00
A procedure for calculating the forming limit as determined by local plastic action is presented. The slope of the effective stress-effective strain curve is significant in determining the strain at which local plastic action occurs. For the common aluminum alloys relatively large strains must first be achieved. Tables, diagrams and graphs are included. This is a final report under contract with the University of California.

PB 15928. KUREWEIL, A. C. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part VIII. Comparison of standard and microtension tests on sheet materials. Final report, February 15, 1945. (OPRD Rept. W-174). Feb 1945. 34 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - Photostat-$3.00
Standard ASTM specimens and microtension specimens of the various aluminum alloy sheet used in aircraft manufacture were investigated. The average true stress-average true strain curves obtained show no significant differences. Only when a complete analytical formulation of the stresses and strains at any stage of the deformation is made available will it be possible to deduce the effective stress-effective strain curve from the tension data. Where buckling can be avoided, solutions for stresses and strains are available by means of compression or torsion tests. Successful predictions of formabilities must include the effects of anisotropy of aluminum.

PB 15933. LAPSLEY, J. T., JR. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part IX. Properties at atmospheric temperature after exposure to elevated temperatures, Final report. Oct 2, 1944. (OPRD Rept. W-152). Oct 1944. 52 p. Price: Limited supply for free distribution; thereafter, microfilm-$1.00 - photostat-$4.00
This is a preliminary study of the effect of forming temperatures up to 500°F on the subsequent atmospheric temperature tensile properties of the precipitation hardened alloys, 24 S-T and to a lesser degree 61 S-T exhibit higher yield stresses than are obtained by the effect of temperature alone. The remaining alloys exhibited consistently lower yield stresses after hot forming than resulted from exposure to temperature alone. Additional investigation are necessary to clarify the combined effects of temperature and straining on the yield stress of the age hardened alloys. Bibliography, tables, diagrams and graphs are included. This is a final report under contract with the University of California.

PB 15917. LAPSLEY, J. T. and others. Study of the forming properties of aluminum alloy sheets. Part XVI. Fatigue endurance of flush riveted panels. Supplemental report. July 6, 1945. (OPRD Rept. W-201). 1945. 17 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$2.00
The endurance strength of dimpled and flush riveted panels of 75S-T alloy was investigated for six different dimpling techniques; test results show large differences. The S-N curves cross in the range of 10^6 to 10^7 cycles, indicating that endurance qualities vary with the number of cycles to which the part is subjected. Tables, graphs, photographs and diagrams are included. This report, done under contract with the University of California, is supplementary to PB 15919.

PB 15921. LOTZE, I. O. and DORN, JOHN E. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part XV. Stretch forming, Final report. April 15, 1945. (OPRD Rept. W-189). 1945. 164 p. Price: Limited supply for free distribution; thereafter, microfilm-$2.00 - photostat-$11.00
The limits of stretch formability for ten aluminum alloys were determined for a series of singly and doubly convex parts and also for a series of saddle-back parts. In order to evaluate the effect of forming temperature on the maximum stretches that may be achieved, the investigations were carried out at 70°F, 200°F, 300°F, and 400°F. In a few cases temperatures up to 600°F were used. The stretches that were obtained exhibited no simple relationship to the tensile data for corresponding alloys and temperatures; variations extended from one-half to seven times the uniform strain in tension, dependent upon die contour and temperature. Stretch forming is a complex phenomenon dependent upon frictional conditions and combined stresses resulting from die shapes. Although analytical methods for predicting the maximum stretches have not been formulated, the data recorded in the report will provide a useful guide for part design tooling, forming temperature and plastic deformation for stretch formed parts from aluminum alloys. Bibliography, tables, diagrams, photographs and many graphs are included. This is a final report under contract with the University of California.

PB 13450. McMASTER, R. C. and CASSEN, Benedict F. Fluoroscopic methods of inspection of metallic materials: Part III. Preliminary factory tests of industrial fluoroscopic inspection - Dec 1, 1944. (OPRD Rept W-180). Dec 1944. 47 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$4.00
This report presents a description of a fluoroscope in which a 140 kvp X-ray tube is used. The results of some exploratory examinations of castings are presented. These observations were made to acquaint project research personnel with the problems of fluoroscopy. More than 6000 castings were inspected. High screen brightness, short eye-screen distances, motion of specimens through the field, viewing of only one specimen at a time, observer experience, and adaptation to the level of illumination of the fluorescent screen were found to be desirable. The tests indicated that industrial fluoroscopes of the types commercially available are suitable for inspection of many types of aircraft castings for large gas holes and extensive defects, or as a screening test prior to radiography. Improvements in fluoroscopes would be required before inspection for small defects, porosity, dross, shrinkage, and misruns could be considered reliable. Tables, diagrams and photographs are given. This is a final report under contract with California Institute of Technology. Other parts of this report are under Cassen, Benedict, Clark, D. C. and Roop, H. D.

PB 13449. McMASTER, R. C. and CASSEN, BENEDICT. Fluoroscopic methods of inspection of metallic materials: Part IV. A method of determining the observing abilities of fluoroscopic inspectors, Jan 1, 1945. (OPRD Rept W-181). Jan 1945. 39 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$3.00
This report presents a method of determining the observing abilities of fluoroscopic inspectors, a relative method of scoring them, and the results of tests on a few typical individuals under various inspection conditions. Artificial specimens with suitable cavities were used as test objects. The visual sensitivity of fluoroscopy with short source-object distances and lead perchlorate cell viewing windows close to the fluoroscopic screen was found to be so much greater than that obtained with long short-object distances that entirely new fields of fluoroscopic inspection of castings are made feasible. Charts, tables and photographs are included. This is a final report under contract with California Institute of Technology. Other parts of this report are under Cassen, Benedict, Clark, D. S. and Hoop, H. D.

PB 16312. MADDEN, BAXTER C., Jr. A method of testing thin sheet material in compression, (AAF, Tech Rept 5311) Oct 1945. 24 p. Price: Microfilm-50¢ - Photostat-$2.00
The test jig, specimen and details of the testing procedure are described. The detection of buckling and the measurement of friction between the specimen and the jig are discussed. Results of tests by the "pack" method, the "cylinder" method and the method described, on 0.035 inch thick steel, are given. These test results, together with those of 0.020 inch thick clad 24S-T and 0.016 inch thick clad 75S-T aluminum alloys, are presented as stress-strain diagrams. Ease of specimen preparation, simplicity of the jig, and the assurance of low friction between the specimen and its supporting plates are advantages of the test method described. Photographs, drawings and graphs are included.

PB 16747. MEHL, ROBERT F., and GROBE, ARTHUR H. Acceptance tests for plain carbon steel gun forgings and other ordnance forgings (OD-114); Progress report May 1 to Aug 1, 1943. (OSRD Rept 1843) Sep 1943. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
This is the first quarterly report of a project set up at the Carnegie Institute of Technology to study the transverse properties of plain carbon forging steels. This report contains data on the preparation of three ingots of SAE 1045 steel and the rolling and forging of two blooms from these ingots. A preliminary study of the heterogeneity of 0.42 per cent carbon steels is also included. Tables and microphotographs are included. See also PB 16746.

PB 16746. MEHL, ROBERT F., and GROBE, ARTHUR H. Acceptance tests for plain carbon steel gun forgings and other ordnance forgings: Final report May 1, 1943 to Aug 31, 1944. (OSRD Rept 5018) May 1945. 132 p. Price: Microfilm-$1.50 - Photostat-$9.00
This final report of work conducted at the Carnegie Institute of Technology presents results of the effect of various heat treatments on the transverse and longitudinal tensile properties of a plain carbon steel at different degrees of reduction by forging from the original ingot. The heterogeneity of this steel before and after homogenization was studied by means of the isothermal reaction technique. Tables, graphs, and photographs are included. See also PB 16747.

PB 15912. PUTNAM, JOHN A. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part II. Guerin forming straight flanges, Final Report, May 10, 1944. (OPRD Rept W-115). July 1944. 162 p. Price: Limited supply for free distribution; thereafter, microfilm-$2.00 - photostat-$11.00
The common rubber hydropress procedure was used to evaluate the minimum bend radii and spring-back for a number of aluminum alloys. The laws for predicting minimum bend radii were studied and a procedure for calculating minimum bend radii from simple tension data is presented. A theory is given which admits the possible explanation which grain size plays in regards to the zero gage length ductility of metals. A summary of the existing status of the theory of forming straight flanges has been included in order to provide a sound analytical basis for comparison of the formability of aluminum alloys at different temperatures, and by means of which the forming limits of new materials may be predicted from simple tensile test data. List of symbols, formulas, 42 references, tables, diagrams, graphs and photographs are included. This is a final report under contract with the University of California. For supplement see PB 15933.

PB 17900. ROBERTSON, J. T. and HARDY, R. G. Conditions of flow in bronze casting. n.d. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
Some factors influencing laminar and turbulent flow in bronze castings have been investigated with gun metal, manganese bronze and aluminum bronze. The diameter of the gate was one of the most important factors governing the linear velocity of the molten metal. Laminar flow produced the best mechanical properties, surface conditions and fracture of aluminum bronze. Laminar flow also was very beneficial to manganese bronze, but conditions of flow had little influence on either mechanical properties, surface or fracture of gun metal. Diagrams, photographs and tables of properties illustrate the text.

PB 16397. ROTE, F.B. and others. Progress report on production and properties of magnesium press and hammer forgings. 1944. 89 p. Price: Microfilm-$1.00 - Photostat-$6.00
The procedures employed in the production of a number of small and intermediately large forgings made in hydraulic presses or steam hammers from the Standard American forging alloys are discussed. The structures and static mechanical properties of a few of the forgings are presented. Current and future work on the investigation of the forgeability, forging and die temperature, ranges, and the influence of heat treatment, directional grain flow, and other metallurgical factors on the mechanical properties are discussed. Tables, diagrams, and photographs are included.

PB 16578. SEDAM, H. W. Aluminum alloy hex bars. (AAF ATSC. Memo Rept EXP-M-51/AD1058, Add 4) Sep 1942. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Tensile strength and hardness tests on 61S-T aluminum alloy hex bars were made to determine the practicability of using them as a substitute for 17S-T and 24S-T alloys in the manufacture of hydraulic fittings. Because it has comparable yield strength and good ductility, the 61S-T alloy is considered a practical substitute for the other alloys if its lower ultimate strength is satisfactory. A table gives test data.

PB 16760. TAYLOR, HOWARD F. Final report on bibliography on centrifugal casting of metal (OD-108). (OSRD Rept 1971) 1943. 111 p. Price: Microfilm-$1.50 - Photostat-$8.00
The present report consists of the following: A short resume of the centrifugal casting field; a discussion of the fundamentals of the various processes; brief, individual abstracts of the more comprehensive writings on the subject as a guide for the reader in the selection of articles pertinent to his interest; and a chronological, classified listing of publications and patents.

PB 16509. TERES, JULIUS. Salt spray test of reflectors. (AAF Expt Eng Sect EXP-M-54-656-565.) Sep 1942. 2 p. Price: Microfilm-50¢ - Photostat-$1.0
Tests showed that a brass shell reflector which had been buffed, silver plated, indium plated, diffused and colored gave best results of corrosion tests made of four reflectors using various finishes. Three had brass shells and one a steel shell as fuse.

PB 15829. THOMSEN, ERICH G. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part III. Rubber hydropress forming of stretch flanges: Final report. December 15, 1944. (OPRD Rept. M-168). Dec. 1944. 39 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$3.00
This general survey on the effect of temperature on stretch flange formability was carried out with a 4 inch contour diameter die at various temperatures from 70°F to 450°F. The effects of thickness, contour radius and segment length were investigated at room temperature only in order to study the trends introduced by these variables. Benefits obtained were substantial for the annealed conditions but only nominal for the precipitation hardened conditions. In all cases the per cent stretch exceeded the ductility in tension. Bibliography, tables, diagrams, graphs and photographs are included. This is a final report under contract with the University of California.

PB 15935. THOMSEN, ERICH G. Study of the forming properties of aluminum alloy sheet at elevated temperature. Part IV. Guerin forming shrink flanges, Final report. August 14, 1944. (OPRD Rept. M-141). Aug 1944. 67 p. Price: Limited supply for free distribution; thereafter, microfilm-$1.00 - photostat-$5.00
The scope of tests was planned to serve as a useful guide for the design and fabrication of aircraft parts containing shrink flanges. Data on the effect of temperature on the spring-back were obtained and a few tests were run in order to indicate the effect of pressure on the shrink flange formability. Improvement was minor up to 450°F. Bibliography, tables, diagrams, graphs and photographs are included. This is a final report under contract with the University of California.

PB 15931. THOMSEN, E. G. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Final report. November 10, 1944. Part VII. Forming of beads. (OPRD Rept. M-164). 1944. 38 p. Price: Limited supply for free distribution; thereafter, microfilm-50¢ - photostat-$3.00
The major factor which determines the forming limit of beads consists of the maximum strain which may be achieved over the bead profile. Under conditions investigated, the beads formed an internal atmospheric dies fractured at or near the point of tangency of the circular portion of the bead profile with the die bend radius. Grid analyses revealed that the strains were essentially uniform over the entire circular portion of the bead profile. At the region of tangency between the bead profile and the bend line, local deformations were universally obtained. Included are bibliography, tables, diagrams, graphs and photographs. This is a final report under contract with the University of California.

PB 16429. TUCKER, C. W. and others. Residual stresses in cold-drawn non-ferrous alloys: An X-ray study, Final report, Part II, Nov 1, 1943-Mar 1, 1944 (OD-25) (OSRD Rept 3599) May 1944. 98 p. Price: Microfilm-$1.00 - Photostat-$7.00
This report contains the results of an investigation of the effect of varying fourth draw die angle on the residual stresses in finished caliber 0.30 brass cartridge cases. The cases were prepared for this work by the Frankford Arsenal Ordnance Laboratory using standard production dies and special 5°, 12½°, and 25° half angle fourth draw dies. The results of X-ray stress measurements and of mercury and ammonia cracking experiments did not show any sensible difference between these lots of cases. Graphs showing stress distribution curves are given. For other reports on this subject see PB 16424, 16430, 16432, 16464, 16484, 16485, 16742, 16744, 16761. These investigations were carried on at Lehigh University under contract with NDRC.

PB 16484. TUCKER, C. W. and others. Residual stresses in cold-drawn non-ferrous alloys (OD-25); an X-ray study, Final report, Part VI: Feb 15, 1945-May 31, 1945. (OSRD Rept 5228) Jun 1945. 53 p. Price: Microfilm-$1.00 - Photostat-$4.00
The present report gives the results of the study of four lots of experimental caliber 0.30 brass cartridge cases prepared by Frankford Arsenal Ordnance Laboratory. These lots represent variations in the speed of the fourth draw and in the temperature of the work and lubricant during the fourth draw. The X-ray stress measurements, the mercury cracking test, and the exterior ammonia cracking test showed the lots to be substantially alike. The interior ammonia cracking test revealed some differences but these differences could not be correlated with the stress measurements. Graphs, diagrams. For other reports on this subject see PB 16424, 16429-30, 16432, 16464, 16485, 16742, 16744, 16761.

PB 16761. TUCKER, C. W. and ANDERSON, H. V. X-ray measurement of residual stresses in cold drawn, non-ferrous alloys (OD-25). Progress report: Jun 15-Oct 15, 1942. (OSRD Rept 953) Oct 1942. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
Reflections from planes can be measured with sufficient accuracy by either microphotometric or visual methods to give a useful index of elastic strain. The strains can be calculated from the differences of ring diameter obtained from 3 exposures with nickel radiation, with the X-ray beam normal to the surface and inclined at 60° from the surface normal in each of 2 directions. Experimental comparison of X-ray strain and mechanical strain shows that the normal Poisson's ratio of 0.33 applies, but that the lattice strains are only 46% of the mechanical strains, an effect attributable to elastic anisotropy of the lattice. Preliminary measurements have been made on sunk brass tubing known to contain high residual stresses and on a series of cartridge cases and intermediate drawn cups. The interpretation of the results is complicated by the presence of a superficial layer of different lattice parameter from the underlying material, which is at least partly due to a steep composition gradient resulting from dezincification during fabrication anneals. Photographs, diagrams, tables, and a bibliography are included. For other reports on this subject, see PB 16424, 16429-30, 16432, 16464, 16484, 16485, 16742, 16744. Investigation reported herein was made at Lehigh University.

PB 16014. U.S. NAVY DEPARTMENT. BUREAU OF ORDNANCE. Composition of Navy Department, and Bureau of Ordnance metals and Federal, Army, Army Ordnance, Army-Navy and commercial equivalents. (NAVORD OD 4417, Second revision). Jul 1945. 502 p. Price: Microfilm-$5.50 - Photostat-$34.00
Navy Department specifications for substitutes for the following metals: Aluminum and its alloys, antimony, copper and its alloys (brass and bronze), iron, lead, magnesium and its alloys, nickel and its alloys, platinum, steel, tin and its alloys, zinc and its alloys. Army Ordnance specifications, Army-Navy Aeronautical Specifications and U.S. Army specifications are included.

PB 17698. U. S. NAVY DEPARTMENT. BUREAU OF YARDS AND DOCKS. Welding inspection and test procedure for welded structures. (Navdocks P-145) Aug 1945. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
This manual is prepared for the use of field inspectors who are responsible for inspecting welded construction. The materials of welded construction are discussed first. Navy inspection organization, with the duties of inspectors clearly indicated, and contractors organization are outlined before the test procedure is explained. Diagrams, report forms and a list of specifications on welding are included.

PB 12979. U. S. QUARTERMASTER BOARD. Final report of test of can, corrugated, nesting, galvanized with covers, QMB T-247. (QMB Project 201). 1943. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This report reaffirms conclusions from preliminary report, Jun 24, 1943, that one six-hour application of boiling water has no effect upon the surfaces of these cans, corrugated, nesting, galvanized, with either regular finish or Bonderite #32 dark gray finish. Six hours of contact with boiling

soapy water removes the Bonderite #32 dark gray finish from the type "A" cans. The type "B" can (galvanized by the lead-zinc process) becomes slightly darker. Report recommends that the addition of one coat of zinc phosphate rust-proofing solution (dark gray finish, produced by Bonderite #32) be considered inadvisable, inasmuch as the finish does not resist severe treatment; and that consideration be given to coating cans with a lustreless olive drab finish. Procedure of test and findings are described in detail.

PB 12982. U. S. QUARTERMASTER BOARD. Report of test of can, water, 5-gallon, made from Bessemer steel - 2MB T-204. (QMB Project T-155) May 1943. 7 p.
Price: Microfilm-50¢ - Photostat-$1.00
This report concludes that these cans are satisfactory containers and are suitable substitutes for the 5-gallon water cans (standard made from open-hearth steel). The bottom seams of the Bessemer steel cans, although not as securely welded as those of the standard cans, are durable enough to withstand ordinary use on convoys and bivouacs. Procedure and findings of test are given in detail.

PB 12977. U. S. QUARTERMASTER BOARD. Report of test of clamp, rod, mosquito bar, experimental, QMB T-1363. (Quartermaster Bd Project T-288) Mar 1944. 6 p.
Price: Microfilm-50¢ - Photostat-$1.00
This report concludes that the experimental clamp is easily assembled to and removed from the standard folding steel cot and medical bedstead, the lower and upper units of the wood bedstead, and the M-1938 bedstead. The experimental clamp provides and maintains a rigid mounting for the mosquito bear rod when attached to any of the cots and bedsteads used in this test. The suggested design for a universal clamp for both round and square hole applications is not shown in this report. Procedure and findings of test are given in detail.

PB 16758. WEINMAN, E. W., and BOEGEHOLD, A. L.
Heat treatment of national emergency steels for use in tanks, combat cars, gun mounts, and other ordnance materiel, (OD-115). Progress report, July 1-Sept 30, 1943. (OSRD Rept 3056) 1943. 28 p. Price: Microfilm-50¢ - Photostat-$2.00
This is a second progress report on work conducted at the Research Laboratories Division, General Motors Corporation. The subjects discussed are: (1) The present status of equipment for the project including description of the cooling curve recorder, quenching fixtures, hardenability test machine and furnace for heating specimens; and (2) experimental work such as preliminary quenching experiments, procedure for recording cooling curves, and interpretation of results. Graphs showing cooling curves are included.

PB 16566. WEISS, I. M. Dissimilar metal effect on magnesium base alloys. (AAF, ATSC. Eng Div Memo Rept TSEAM-M4890) Dec 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Investigation of the dissimilar metal contact effect of various aluminum alloys on the corrosion resistance of magnesium base alloys. Tests of cast and sheet magnesium alloys in contact with 9 aluminum alloys, 75S alclad. 75ST, 214, 355, 356, and 195, 52SH, 24ST and alclad 24ST were made. After 4 months exposure to Florida tide water, the treated magnesium panels with aluminum alloy attachments, were returned to Wright Field for evaluation and photographing. Evaluation data was divided first by cast or sheet aluminum alloy, then into 4 classes in decreasing order of merit. Appendix gives testing procedure and tables of chemical and radiographic analysis, heat treatment data and the results of the evaluation of galvanic corrosion on the magnesium panels and aluminum attachments.

PB 16107. WELLS, A. C. Jr. and others. Test of truck mud anchor, manufactured by James R. Kearney Corp: First report and 47th report on Ordnance program 5298. (Aberdeen Proving Ground Rept 41-34) Jun 1941. 12 p.
Price: Microfilm-50¢ - Photostat-$1.00
A test was conducted to determine the holding strength of this truck mud anchor in various types of soils as an aid for use in pulling a stalled truck or other vehicle out of distress. It was concluded that where it is possible to anchor the device in firm soil, sufficient holding strength is available for pulling any truck out of normal mud or snow stalls. It is recommended that a number of these devices be tried in service where vehicles can be stalled in severe muddy terrain. Photographs and drawings of anchor are appended.

PB 15922. WILSON, SCOTT P. and others. Study of the forming properties of aluminum alloy sheet at elevated temperatures: Part VI-A. Deep drawing boxes. Final report, March 15, 1945. (OPRD Rept M-186). 1945. 63 p.
Price: Limited supply for free distribution; thereafter, microfilm-$1.00 - photostat-$5.00
A preliminary investigation, PB 15913, revealed the advantages of deep drawing boxes at two elevated temperatures in a limited number of alloys. The present report completes this work using additional alloys and temperatures. The drawability of the temper alloys tested at 600° F was more than twice that obtained at 70°F. Boxes of hardened temper alloys formed at 450°F were comparable in drawability to boxes drawn from annealed alloys at 70°F. Tables, graphs and photographs are included. This is a final report under contract with the University of California.

PB 15981. WYNNE, RICHARD C. Design for precision casting. Feb 1946. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The author states that the precision casting process offers today what is without a doubt the least expensive method of making a large range of metal articles and in some cases, the only method. The tooling expense is low and the number of pieces required need not be large to make production by precision casting economical. Some typical examples of parts made by precision casting techniques. Suggestions are included to help in designing a part adaptable to precision casting. Seven photographs.

PB 16849. YOUNG, E. H. Development of spectrophotometric procedures. (AAF Tech Rept 4995) Aug 1945. 41 p. Price: Microfilm-50¢ - Photostat-$3.00
Procedures developed for routine analyses in the Materials Laboratory for the determination of: (1) Manganese in aluminum, magnesium and steel; (2) titanium in aluminum alloys; (3) molybdenum in steel; (4) nickel in steel; (5) combined nitrogen in steel. Coleman spectrophotometer, model 11, was used. Solutions for investigation and preparation of working curves were prepared from Bur. of Standards alloys when these were available. In other cases synthesized standards were prepared from chemical solutions of metals. Methods of sample preparation, selection of wave length values, preparation of working curves showing relationship between percentage of constituent and optical density measured at the proper wave length make up the outlined procedure. A bibliography of 4 items, 5 pages of tables and 11 pages of curves are included.

METEOROLOGY AND CLIMATOLOGY

PB 16922. SERRA, ADALBERTO and RATISBONNA, LEANDRO.
The air masses of South America (a translation of "As massas de ar da America do sul. May 1942). (Army Air Forces Weather Information Branch. Rept 403). Nov 1943. 229 p. Price: Microfilm-$2.50 - Photostat-$16.00
The authors, engineers of the Brazilian government, begin their discussion with the classification of air masses of South America as Antartic mass, polar masses, tropical masses and equatorial masses. After a concise explanation of frontogenesis in the zones to be considered, the authors make a thermodynamic study of the air masses and a study of the secondary circulation of the atmosphere in the temperate and equatorial zones. In this latter discussion, they explain the origin of rains in Brazil. Appendix contains charts and maps.

PB 16917. U. S. ARMY AIR FORCES. DIRECTORATE OF WEATHER. Climatic data for Alaska. (Publication 222). Oct 19, 1942. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
The following climatic data have been summarized in a series of charts: Direction and velocity of prevailing surface winds; average number of hours daily from sunrise to sunset; temperature; total depth of snow; daily, precipitation of rain, snow, fog and frost; percent of cloudiness; ceiling; and visibility. Monthly data were given for the following places: Anchorage; Kodiak; Barrow; Nome; Dutch Harbor; Fairbanks; Ketchikan; and Skagway.

PB 16913. U. S. ARMY AIR FORCES. DIRECTORATE OF WEATHER and U. S. WEATHER BUREAU. STATISTICS DIVISION. Meteorological conditions of the Pacific Island Region. (AFTSW No. 17). n.d. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
This report was compiled under the direction of the Air Corps Weather Research Center by the U. S. Weather Bureau, and discusses climate and weather of the Pacific Islands and surrounding regions. The report is preliminary in nature since immediate need for the survey made it necessary to limit the data to those which could be compiled from the more significant sources. The first part of the report covers the general conditions of climatology, flying conditions, wind velocities and directions, ceiling and visibility, and ice accretion. The remainder of the report is concerned with detailed discussions of weather along the following routes: (1) Honolulu - Midway - Wake - Rabaul - Port Moresby; (2) Honolulu - Palmyra - Canton - Tutuila - Suva - Noumea - Rockhampton, (3) Rockhampto to Darwin - Rockhampton to Port Moresby - Port Moresby to Darwin; and (4) Darwin - Kendari - Manila - Darwin - Amboina - Davao - Manila, Prevailing wind directions and velocity frequencies are recorded in tabular form. A map shows the mean positions of polar and equatorial fronts. A list of weather stations and a table of climatological data for the four seasons are also included.

PB 16908. U. S. ARMY AIR FORCES. DIRECTORATE OF WEATHER. WEATHER RESEARCH CENTER. Preliminary report on the weather and climate of Madagascar. (Pub 46) May 1942. 57 p. Price: Microfilm-$1.00 - Photostat-$4.00
This report, prepared for the Weather Research Center by the Institute of Meteorology, University of Chicago, reaches the following conclusions on climatic and weather conditions in this area: (1) The southwest corner of Madagascar has the best year around flying conditions and the east side of the island has the worst flying conditions, (2) during the winter (May to September) flying conditions are generally good to excellent in the central and western part of the island, (3) severe thunderstroms occur every other day in the interior and on the west and northwest coasts during the summer, (4) intense tropical storms occur most frequently from January to March, (5) ground operations will be restricted by extensive precipitation in the tropical climate of the northern and eastern section. The detailed report accompanied by tables, charts, graphs, and maps covers the following subjects: Meteorological service; temperature climate; precipitation climate; bio-climate; barometric pressure; surface winds; upper winds; air masses; cyclones; thunderstorms; visibility; cloudiness and ceiling; icing.

PB 16905. U.S. ARMY AIR FORCES. DIRECTORATE OF WEATHER. WEATHER RESEARCH CENTER. Special preliminary report on the coast of east Greenland between latitudes 70°N and 75°N. (Pub 97) Jun 1942. 26 p. Price: Microfilm-50¢ - Photostat-$2.00
This report is concerned primarily with the state of the sea and the possibility of anchoring boats along the east coast of Greenland north of the 70th parallel. Ice and the periods open to navigation receive first attention. Tides and currents are discussed and possible anchorages are described. There are charts and maps. Most of the maps and profiles are from the Louise A Boyd Arctic Expeditions of 1933 and 1937.

PB 16915. U. S. ARMY AIR FORCES. DIRECTORATE OF WEATHER. WEATHER RESEARCH CENTER. Weather characteristics from Tripoli to Port Said. (Pub. 201). Oct 19, 1942. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Weather in this area is typical of desert conditions in many parts of the world. Annual and diurnal temperature ranges are great, dust and fine sand are frequently in the air, and, away from the coast overnight freezes may occur. The weather here may be divided into two regimes, the hot dry period from June through August, and the dust or rainstorm period beginning in September and continuing through May. Weather conditions and resulting operations for each period are discussed briefly. Late spring or early fall are the best operational seasons. A graphic presentation of weather factors is appended to this report which was prepared by Climatological Section.

PB 16906. U. S. ARMY AIR FORCES. DIRECTORATE OF WEATHER. Weather charts of the Army Air Forces. (Pub 309) Mar 1943. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
This book is an index to all Weather Research Center charts with pertinent data pertaining to each. The opening pages discuss policies in regard to the publication of charts. Illustrative maps are given for the following series: (1) World weather plotting charts; (2) sectional world weather plotting charts; (3) southern latitude series weather plotting charts; (4) northern latitude series weather plotting charts; (5) equatorial series weather plotting charts; (6) polar weather plotting charts; (7) weather flight charts; (8) upper air wind charts; and (9) special weather charts.

PB 16914. U. S. ARMY AIR FORCES. DIRECTORATE OF WEATHER and U. S. WEATHER BUREAU. STATISTICS DIVISION. Weather conditions affecting air operations in Italy and nearby islands. (AFTSW 360 W. B. Special rept 235). n.d. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This report is concerned with weather and its effect on air operations over Italy, Corsica, Sardinia, Sicily, Malta, Pantelleria, Isole, Pelagria and other islands in the Malta and Sicily channels. It discusses the following: General weather conditions; the prevailing winds both surface and aloft; visibility; precipitation: cloudiness and ciling; and temperature.

PB 15136. U. S. ARMY AIR FORCES. HEADQUARTERS. DIRECTORATE OF WEATHER. Strategic aspects of the Balkan climate. (Special Series 2). Dec 1942. 42 p. Price: Microfilm-50¢ - Photostat-$3.00
This report summarizes the possible influence of climatic conditions upon military operations in the Balkans. The material is arranged according to various types of military operations and climatic elements likely to affect them. Sections on geo political data and strategic geography, climatic and weather influence on warfare; and verial, parachute, landing and mechanized operations. A summary of findings is included. The texts is supplemented by an atlas containing 27 maps which give the geographic distribution and annual variation of the most important climatic factors. A bibliography and graphs A short summary indicating this most significant climatic facts appears on each map. A list of weather stations is also given.

PB 17080. U. S. ARMY AIR FORCES. WEATHER CENTRAL DIVISION. Cloud cover forecasting at Tokyo, Nagasaki, and Naha in August. (Rept 950) 1945. 55 p. Price: Microfilm-$1.00 - Photostat-$4.00
This report prepared by California Institute of Technology, Research Weather Station summarizes various synoptic relationships which can be used in forecasting sky cover at Tokyo, Nagasaki and Naha during August. The presentation of information that applies to forecasting for each locality is divided into sections, and forecast intervals are arranged in order for each station. For each forecast interval, situations leading to clear skies are presented on left hand pages, and situations leading to overcast skies on right hand

pages. The information for each time lag includes climatology, persistance verification, statements of synoptic specifications, verification data in the form of tables and graphs, check sheets indicating the day by day occurrence of the forecast situation for each sample, and typical weather maps to illustrate the synoptic conditions defined.

PB 17079. U. S. ARMY AIR FORCES. WEATHER CENTRAL DIVISION. Cloud cover forecasting at Tokyo, Nagasaki and Naha in September. (Rept 951) 1945. 43 p.
Price: Microfilm-50¢ - Photostat-$3.00
This report summarizes various synoptic relationships which can be used in forecasting sky cover at Tokyo, Nagasaki, and Naha during September. The information for each time lag includes climatology, persistence verification, statements of synoptic specifications, verification data in the form of tables and graphs, and typical weather maps to illustrate the synoptic conditions defined by each situation.

PB 17077. U. S. ARMY AIR FORCES. WEATHER CENTRAL DIVISION. Cloud cover forecasting for the Japanese area in October. (Rept 952) Sept 1945. 67 p.
Price: Microfilm-$1.00 - Photostat-$5.00
This report presents various synoptic relationships which can be used in forecasting sky cover at various cities in the Japanese area during the month of October. It gives the forecaster information regarding climatology and persistance as well as defining synoptic cover. It is one of a series of similar reports on forecasting sky cover prepared by LRRU, CIT-AAF Research Weather Station, and the California Institute of Technology Meteorology Staff. The presentation of material that applies to forecasting is arranged according to geographical areas, beginning with Northern Japan and ending with the Ryukyu Islands. Synoptic maps and graphs are included

PB 17078. U. S. ARMY AIR FORCES. WEATHER CENTRAL DIVISION. Forecasting tops of non-frontal cumulus clouds in polar-air outbreaks over the North Atlantic. (Rept 971) Sep 1945. 51 p. Price: Microfilm-$1.00 - Photostat-$4.00
Part I entitled "Recommended field procedure in forecasting elevation of tops of non-frontal cumulus clouds formed over the North Atlantic during polar-air outbreaks" describes method designed for use with constant-level upper air maps. Part II entitled "A method for forecasting the elevation of tops of non-frontal cumulus clouds formed over the North Atlantic during polar-air outbreaks" describes procedure and forecasting problems involved in this research. This report concluded that the dominant processes which modified air in its trajectory from land to ship were surface heating and horizontal adjection; the cumulus build up averaged 750 feet above the base of the most stable layer; the height of the cumulus tops were forecast within 1300 feet by the technique outined in this report. The afore mentioned conclusions are based on RAOB soundings taken by a weather ship lying between Greenland and Newfoundland during the first four months of 1944. References, tables of temperature and humidity data, scatter diagrams, and a chart illustration cumulus top forecasting are included.

PB 17076. U. S. ARMY AIR FORCES. WEATHER CENTRAL DIVISION. Selected translations from the Journal of the Meteorological Society of Japan. (Rept 966) Aug 1945. 159 p. Price: Microfilm-$2.00 - Photostat-$11.00
This series of translations was requested by the 15th Weather Region in keeping with the policy of providing forecasters in the field with the best current reference material on the meteorology of important operational areas contents are: 1. Southerly wind at Naze as an indication of coming rain in Japan, by K. Han'i; 2. the characteristics of the air masses of Japan, by H. Arakawa; 3. the trough of atmospheric pressure formed on the Pacific Coast of Japan proper by NW-wind, by T. Otani; 4. high water due to the tidal waves propagated in Osaka Bay, by K. Terada; 5. characteristics of the air masses in and around Japan, by H. Arakawa; 6. on the structure of the extratropical cyclone in the Far East, by H. Futi and others; 7. on the development of cyclones in the neighborhood of Japan, by S. Ooma; 8. on the three principal air masses of Japan and its neighborhood, by T. Yamanaka and C. Ikeda; 9. studies concerning the development of the moderate cyclone in and around Japan, by S. Coma and M. Utugi. All of these papers were taken from the Journal of the Meteorological Society of Japan, Second Series, and were published between 1923 and 1940. Tables and charts are included.

PB 16924. U. S. ARMY AIR FORCES. WEATHER CENTRAL DIVISION. Upper winds with visual bombing conditions at Tateno, Japan. (Rept 896). 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
These observations were taken with pilot balloons and reported by the Tateno-Aerological Observatory between 1923 and 1936 inclusive for January, February, April, July, October and December of these years. A table gives the average wind velocity, prevailing direction, and the percentage frequency of various velocity intervals at 5, 6, 8 and 10 kilometers above sea level at Tateno, which is near Tokyo. There is a record of the total number of cases sampled in each category. Will reproduce poorly.

PB 17039. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Aalborg (Denmark). (General Climatic Information Guide 66). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to climatic conditions of Aalborg, with a table presenting military implications, a topographic map, a soil trafficability map, and 9 graphs.

PB 17034. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Aachen (Germany). (General Climatic Information Guide 119). 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Aachen, with a table presenting military implications. A topographic map and a soil trafficability map are included as well as 9 graphs.

PB 17068. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Athens (Greece). (General Climatic Information Guide 17 rev.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Athens, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17061. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Belgrade (Yugoslavia). (General Climatic Information Guide 27). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Belgrade, with a table presenting military implications, a topographic map, a soil trafficability map, and 10 graphs.

PB 17067. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Berlin (Germany). (General Climatic Information Guide 20 rev.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Berlin, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17074. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Bremen (Germany). (General Climatic Information Guide 7 rev.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Bremen, with a table presenting military implication of climatic conditions. A topographic map and a soil trafficability map, as well as 9 graphs, are included.

PB 17064. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Breslau (Germany) (General Climatic Information Guide 55 rev.) 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Breslau, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17073. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Bucharest (Rumania). (General Climatic Information Guide 8 rev.) 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
The following estimates are used in this guide to general climatic conditions of Bucharest: Wet soil estimates based on observations of high amounts of rainfall, estimates of ceilings below 1,000 feet, visibility estimates, and winds aloft. A table presenting military implications of climatic conditions, a topographic map, and a soil trafficability map are included. Graphs.

PB 17037. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Budapest (Hungary). (General Climatic Information Guide 31). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Budapest, with a table presenting military implications, a topographic map, a soil trafficability map, and 9 graphs.

PB 17065. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Burgas (Bulgaria). (General Climatic Information Guide 22 rev.) 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Burgas, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17049. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Cologne (Germany). (General Climatic Information Guide 116). 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to climatic conditions of Cologne, with a table presenting military implications, a topographic map, a soil trafficability map, and 10 graphs.

PB 17070. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Copenhagen (Denmark). (General Climatic Information Guide 11 rev.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Copenhagen, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17052. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Corfu Island (Greece). (General Climatic Information Guide 65 rev.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Corfu Island, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17035. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Dresden (Germany). (General Climatic Information Guide 126) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Dresden, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17042. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Esbjerg (Denmark). (General Climatic Information Guide 70). 1943. 4 p. Price: Microfilm-50¢ Photostat-$1.00
A brief guide to general weather conditions of Esbjerg, with a table presenting military implications of climatic conditions. A topographic map and a trafficability map are included as well as nine graphs.

PB 17043. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Flensburg (Germany). (General Climatic Information Guide 68). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Flensburg, with a table presenting military implications of climatic conditions. A topographic map and a soil trafficability map are included as well as nine graphs.

PB 17075. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Frankfurt (Germany). (General Climatic Information Guide 1 rev.) 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Frankfurt, with a table presenting military implications of climatic conditions. A topographic map and a soil trafficability map are included as well as nine graphs.

PB 17044. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Hannover (Germany). (General Climatic Information Guide 83). 1943. 4 p. Price: Microfilm-50¢-Photostat-$1.00
A brief guide to general climatic conditions of Hannover, with a table presenting military implications of climatic conditions. A topographic map and a soil trafficability map, as well as nine graphs, are included.

PB 17053. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Istanbul (Turkey). (General Climatic Information Guide 57). 1943. 4 p. Price: Microfilm-50¢-Photostat-$1.00
A brief guide to climatic conditions of Istanbul, with a table presenting military implications, a topographic map, a soil trafficability map, and 9 graphs.

PB 17036. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Karlsruhe (Germany). (General Climatic Information Guide 121). 1944. 4 p. Price: Microfilm-50¢ Photostat-$1.00
A brief guide to general climatic conditions of Karlsruhe, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17033. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Kassel (Germany). (General Climatic Information Guide 118). 1944. 4 p. Price: Microfilm-50¢ Photostat-$1.00
This is a brief guide to general climatic conditions of Kassel, with a table presenting military implications of climatic conditions. A topographic map and a soil trafficability map are included, as are nine graphs.

PB 17041. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Kiel (Germany). (General Climatic Information Guide 69). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Kiel, with a table presenting military implications, a topographic map, a soil trafficability map, and 9 graphs.

PB 17051. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Koenigsberg (Germany). (General Climatic Information Guide 61). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to climatic conditions of Koenigsberg, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17040. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Linz (Austria). (General Climatic Information Guide 67). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to climatic conditions of Linz, with a table presenting military implications, a topographic map, a soil trafficability map, and 9 graphs.

PB 17047. U.S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Lwow (Poland). (General Climatic Information Guide 94). 1944. 4 p. Price: Microfilm - 50¢ - Photostat - $1.00
A brief guide to weather conditions of Lwow, with a table presenting military implications, a topographic map, a soil trafficability map, and 10 graphs.

PB 17055. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Munich (Germany). (General Climatic Information Guide 54 rev.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Munich, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17071. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Mytilini (Aegean Islands). (General Climatic Information Guide 10 rev). 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Mytilini, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17050. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Nürnburg (Germany). (General Climatic Information Guide 117.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to climatic conditions of Nürnberg, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17045. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Prague (Czechoslovakia). (General Climatic Information Guide 92). 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Prague, with a table presenting military implications of climatic conditions. A topographic map and a soil trafficability map are included as well as nine graphs.

PB 17048. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Riga (Latvia). (General Climatic Information Guide 95 rev.) 1944. 4 p. Price: Microfilm-50¢ Photostat-$1.00
A brief guide to general climatic conditions of Riga, with a table presenting military implications, a topographic map, a soil trafficability maps, and graphs.

PB 17062. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Scutari (Albania). (General Climatic Information Guide 25) 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to the general weather conditions of Scutari, with a table presenting military implications, a topographic map, a soil trafficability map, and 10 graphs.

PB 17060. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Skoplje (Yugoslavia). (General Climatic Information Guide 26 rev.) 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Skoplje, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17072. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Smyrna (Turkey). (General Climatic Information Guide 9 rev) 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Smyrna, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17069. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Sofia (Bulgaria). (General Climatic Information Guide 16). 1943. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Sofia, with a table presenting military implications, a topographic map, a soil trafficability map, and 8 graphs.

PB 17037. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Stettin (Germany). (General Climatic Information Guide 127). 1944. 4 p. Price: Microfilm-50¢ Photostat-$1.00
A brief guide to general climatic conditions of Stettin, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17064. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of the Gulf of Valona (Albania). (General Climatic Information Guide 23 rev.) 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of the Gulf of Valona, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17068. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Thessalonike (Greece). (General Climatic Information Guide 30) 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Thessaloniki, with a table presenting military implications, a topographic map, a soil trafficability map, and 9 graphs.

PB 17038. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Trier (Germany). (General Climatic Information Guide 161). 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Trier, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17066. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Varna (Bulgaria). (General Climatic Information Guide 21 rev.) 1944. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Varna, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17056. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Vienna (Austria). (General Climatic Information Guide 35 rev.) 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Vienna, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 17046. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Warsaw (Poland). (General Climatic Information Guide 93). 1944. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Warsaw, with a table presenting military implications, a topographic map, a soil trafficability map, and 9 graphs.

PB 17054. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climate of Zagreb (Yugoslavia). (General Climatic Information Guide 28 rev.) 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief guide to general climatic conditions of Zagreb, with a table presenting military implications, a topographic map, a soil trafficability map, and graphs.

PB 16909. U. S. ARMY AIR FORCES. WEATHER DIVISION. Climatic conditions of Gaudalupe Island. (Rept 975) Jan 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
As the result of studying the climatic conditions of Guadalupe Island it was concluded that winter would be the best season for aerial bombing. No actual observations or synoptic data are available because no known record of an observation station located on the island exists but a table of estimated climatic conditions in appended to the report. The data used in the table were obtained from "Monthly Meteorological Charts of the Eastern Pacific" using ship reports obtained during the period 1855 through 1938

PB 17085. U. S. ARMY AIR FORCES. WEATHER DIVISION. Frequency of location of the centers of low pressure systems over the North Atlantic Ocean. (Rept 738) Apr 1944. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The probability of the centers of cyclones being located within a given 5° square over the North Atlantic Ocean is indicated by the maps included in this report. The results are based on daily 1300 GMT observations over a period varying from 33 to 41 years.

PB 16916. U. S. ARMY AIR FORCES. WEATHER DIVISION. Forecasting and related problems in China. (Rept 863). Dec 19, 1944. 28 p. Price: Microfilm-50¢ - Photostat-$1.00
This report consists of a number of papers on various subjects related to weather forecasting in China which were selected from those submitted for publication by Army Air Forces forecasters who had worked in China and represent a resume of the techniques and ideas they gained by experience in that area. The following papers are included: "Hump troughs, ridges, and related phenomena"; "Some aspects of equivalent-potential temperatures in relation to western trough passages in Yunnan Province"; "Radiosonde and pilot balloon data as used in weather analysis at Yunnaniji, China"; "Weather of Formosa and the Formosa Straits"; "Southern extent of China haze." A map shows the location of weather stations in Free China. A brief summary of procedure and general weather conditions precedes the papers.

PB 17081. U. S. ARMY AIR FORCES. WEATHER DIVISION. Meteorological aspects of high-altitude flight. (Rept 847) Dec 1944. 31 p. Price: Microfilm-50¢ - Photostat-$3.00
The object of this report is to outline the weather conditions which affect high flying. It points out the manifold opportunities to avoid the usual weather hazards and obstructions to aviation by seeking greater heights than heretofore-levels as high as the newer airplanes can operate effectively. Available information on upper atmosphere is presented under the following headings: Average change with height of the significant atmosphere elements; cross sections of average conditions; winds aloft; miscellaneous phenomena. Graphs and charts giving temperature ranges, wind speeds, etc. are included.

PB 17083. U. S. ARMY AIR FORCES. WEATHER DIVISION. A rational method of constructing high altitude weather maps. (Rept 796) Aug 1944. 7 p. Price: Microfilm-50¢ Photostat-$1.00
This report describes a method of drawing the 20,000 feet 10-kilometer charts which partly overcomes the lack of wind or pressure observations at the afore-mentioned levels.

PB 17082. U. S. ARMY AIR FORCES. WEATHER DIVISION. Relation between surface and gradient winds at three cities in Formosa. (Rept 817) Sep 1944. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
The object of this report is to determine the relation between the surface and gradient winds at three stations in Formosa. The gradient directions used in this report were taken from the 1800 (135 meridian time) synoptic maps of the central meteorological observatory at Tokyo, Japan. It was found that there is relativity good agreement between the direction of the gradient winds and the surface winds. When the surface wind shows a remarkable variation from the gradient direction, the reason will probably be found in the topography of the area. Charts and graphs of surface and gradient wind distribution and a topographical map are included.

PB 15663. U.S. ARMY AIR FORCES. WEATHER DIVISION. Studies on local forecasting, Pope Field, North Carolina. (Report 600-94) Sep 1944. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
Discusses geographic and topographic considerations, climatic and synoptic considerations, peculiarities of local weather, rules and practices in forecasting weather at this station. Contains maps of area, orographic effect and smoke pollution wind rose, and climatic statistics.

PB 16923. U. S. ARMY AIR FORCES. WEATHER DIVISION. Synoptic aspects of the climate of Japan: a preliminary report. (Rept 639 Part II). Mar 1945. 146 p. Price: Microfilm-$1.50 - Photostat-$10.00
This report is part of a large report on the weather and climate of Japan. The entire report is concerned with gradient winds over the inner Japanese empire. Gradient flow was classified from synoptic charts drawn for the hours 0600 and 1800 local time of the meridian of 135° east longitude. The statistics are based on a 5-year record, 1931-34 and 1936. This section of the report is concerned with the persistance of the several flow types through sequences of successive bi-daily observations. The data for these sequences are compiled in a series of tables which constitute the major portion of the report. A list of weather station and a map of Japan showing the location of stations completes the report.

PB 17084. U. S. ARMY AIR FORCES. WEATHER DIVISION. Terminal conditions at stations in the 8th weather region. (Rept 758) Feb 1945. 4 p. Price: Microfilm-50¢ Photostat-$1.00
This study represents terminal weather conditions at stations in the 8th Weather Region in graphical form. Data were obtained from punch card summaries based on Army form 945. The period of record for the eighteen reporting stations ranges from Jan 1939-July 1941 at Washington, D.C., to Dec 1941-Aug 1944 at Sondrestromfjord, Greenland. A map indicating annual surface wind roses and bar diagrams showing ceiling heights and visibility are included.

PB 16918. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. Climate of southwestern Europe. (AFRTW Rept 461). Aug 19, 1943. 55 p. Price: Microfilm-$1.00 - Photostat-$4.00
This study of climate is concerned with the two southern European peninsulas, the Italian and Iberian, these areas are lists of weather stations and station location maps. The first list includes stations in Italy, Sicily, and Sardinia; the second, stations in Spain and Portugal and Marseille, France. The discussion of weather conditions in Italy is accompanied by tables showing days overcast with low clouds, days with visibility of 2 miles or less, days with fog, days with thunderstorms, mean cloudiness, mean precipitation, days with precipitation, days with snowfall, mean relative humidity, mean temperatures, maximum and minimum temperatures, surface winds, days with rain over sea areas and by wind roses for Genoa, Palermo, Venice and Vigna di Valle by seasons. The discussion of weather conditions in southern France, Spain and Portugal is accompanied by tables showing days with ceilings less than 1,000 feet, days with visibility 2½ miles or less, days with fog, days with thunderstorms, days with gales, mean cloudiness, mean precipitation, days with precipitation, days with snowfall, relative humidity, mean temperatures, absolute recorded temperatures and by wind roses for Almeria, Barcelona, and Marignane.

PB 16926. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. Climatic flying data for selected stations in the southeastern United States. Part II. (AFRTW 667). Jan 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
Data are given for the following stations: Advance, Mo.; Columbus, Ohio; Florence, S. C.; Jackson, Miss.; Louiville, Kentucky, Muscle Shoals, Alabama; and Nashville, Tennessee. Tables cover ceiling, visibility and unflyable weather.

PB 16935. U. S. ARMY AIR FORCES. WEATHER INFORMATION BRANCH. Occurrence of low ceilings and low visibilities for selected stations in the Carolinas. (AFRTW 489). n. d. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
The chart which constitutes this report shows in percentage the occurrence of ceilings 2000 feet or less and of visibilities of two miles or less at the following places: Wilmington, North Carolina; Goldsboro, N. C.; Greenville, S. C.; and Charleston, S. C.

PB 17086. U. S. ARMY AIR FORCES, WEATHER INFORMATION BRANCH. Weather and climate of Tsushima Island and surrounding strait. (Rept 593) Nov 1943. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This report includes the following headings for subject area: Major controls of weather, local controls of weather-topography, sea and currents-winter weather, summer weather, weather of the transitional months and bombing weather. Eight maps and twelve tables are presented.

PB 16912. U. S. ARMY AIR FORCES. WEATHER INFORMATION SERVICE. Weather and sea conditions affecting military operations in the coastal areas of the Netherlands, Belgium, and northern and western France. (July through December), Part II, section III oceanography and soil trafficability with tables and figures. (Rept 430). 1943 270 p. Price: Microfilm-$3.00 - Photostat-$18.00
This volume, part of a larger work on "Oceanography and Soil Trafficability" contains the following: Data on the state of the sea for 27 localities shown in figues and graphs; bathymetry charts; sea surface temperatures; tidal data; data concerning sun, moon, and tide; charts and maps relative to currents.

PB 16907. U. S. WEATHER BUREAU. Comparison of meteorological conditions along northeast ferry routes (Summary). (Special Rept 105) 1942. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This report is a summary of meteorological conditions over the routes, which were under consideration in the spring of 1942 for ferrying aircraft to the United Kingdom. Part one summarizes general conditions along the route; part two is concerned with a comparison of routes. On a map of the area the estimated percentage of flyable and operating weather over the northeast route is given for the following sectors: Presque Isle to Gander; Presque Isle to Goose Bay; Gander to BW-1; Goose Bay to BW-1; Goose Bay to BW-8; BW-1 to Reykjavik; BW-8 to Reykjavik; BW-8 to Spitzbergen; Reykjavik to Prestwick; Reykjavik to Spitzbergen; Spitzbergen to Murmansk. The small type on this map makes it doubtful if the map will reproduce well, nor will the transparent sheet containing a pattern of storm routes reproduce in any way to be of use.

ORDNANCE AND ACCESSORIES

British

PB 15970. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: Bomb, incendiary, pocket type, British EB Reg 8009. Mar 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief evaluation is given of a British pocket type incendiary bomb. Photograph is included.

PB 15971. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: British grenade, EB Reg 8008. May 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief evaluation is given of British grenade, Gammon #2 consisting of a plastic head and cap, a sheet metal skirt fastened to the head, and a cloth envelope which has an elastic bottom edge that remains partially open. Photographs are included.

PB 15973. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: British tyre burster or ointment box mine EB Reg 9000. Dec 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief evaluation is given of British tyre burster or ointment box mines, small metal containers with about 3 ounces of TNT for use aginst personnel and vehicles. A photograph is included.

PB 15972. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: Clam, MK, British, EB Reg 8007. May 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief description of a British MK1 clam demolition charge. Photograph is given.

German

PB 16723. CREWS, J. M. and KRAMER, A. E. Chrome plating of barrels by the Heinrich Reining , G.m.b.H. (CIOS Rept, File XXXII - 64, Items 2 and 21). June 1945. 56 p. Price: Microfilm-$1.00 - Photostat-$4.00
This report consists of translations of laboratory reports taken from the Reining firm, Ingen / Westphalia, Germany. This firm chrome-plated the 7.92 mm barrels for the MG-34 and 17 on a production basis, and was conducting experiments on the plating of tubes up to 8.8 cm diameter. The investigating team was unable to obtain any information as to the outcome of the experiments or the utility of the chrome-plated barrels used in the field. However, the reports give some information on the processes used by this company. There are eight reports dated 1941, on various aspects of chrome plating. Emphasis is on the development of a more efficient chrome plating anode for MG 34 barrels. Diagrams, schematic drawings and graphs are presented.

PB 16731. FARR, WILLIAM W. Recoilless gun development of Rheinmetall Borsig. (CIOS Rept, File XXXII-108, Item 2). Aug 1945. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
German recoilless gun development was activated by the need for greater muzzle energy from a light weight gun mount. New tactical requirements stimulated the experimental study and, in particular, the demand by the airborne and parastroop for a large caliber, light weight gun brought about the first German recoilless gun, the 75 mm. LG40. Soon after this, consideration was given to light weight guns for aircraft and anti-tank guns for use with hollow charge ammunition. The high powder consumption of the recoilless gun considerably lowered the priority of development of these guns. With the exception of the 7.5 and 10.5 cm LG none of the recoilless developments were used in the field. Report contains engineering data on the 7.5 cm LG40, 10.5 cm LG42, 15cm LG40 and LG290, 5.5 cm Mk115, 50 cm Rocket Firing, and "Hammer" recoilless guns. Tables of data on gun's characteristics and schematic drawings are given. Text accompanying drawings is in German.

PB 16717. KAUFMAN, R. E. Development of new series German tanks up to end of March 1945. (CIOS Rept, File XXII - 35, Item 19). Aug 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The Germans planned a redesign of its series of tanks from small tanks of 10-15 tons to super-heavy tanks of about 130-140 tons. While they sought to simplify maintenance and

reduce manufacturing time and costs, the prime objective was the increase of fire power. A translation of a paper by Dir. Jenschke, formerly of Adlerwerke, is included in this report. Five different tracked vehicles were to be constructed. The E-10, a small tank of about 10 to 15 tons, and the E-25, a tank of about 50 tons, did not get beyond the designing stage. The E-50, a medium tank of about 50 tons to replace the Panther, and the E-75, 75 to 80 tons, to replace the Tiger, are described. These were to have many identical features and could be constructed on the same assembly line. These tanks were still in the development stage. The same is true of the E-100, a super-heavy tank, of which a trial vehicle was practically completed. Drawings of the E-50/75 and E-100 are attached.

PB 16709. KRAMER, ALEXANDER E. Development of weapons by Rheinmetall - Borsig. (CIOS Report, File XXXI-63, Item 2). 1945. 197 p. Price: Microfilm-$2.00 - Photostat-$14.00
A volume describing the development of various weapons during the war by Rheinmetall-Borsig. The organization of the firm, with key personnel, is outlined. Detailed description of the manufacture and specifications of the following armament is given: Automatic weapons; 5.5 cm AA weapon 58; 15 mm aircraft gun HF15; weapons 30-117-30-119; armament of high speed fighter planes; 37 mm gun 341; 3 cm 30-116; 8.5 mm aircraft guns MK-112 and MK-114; 5cm 30-500; 5 cm AA weapon 41; 35 cm recoilless aircraft gun 104; development of light AA carriages; aircraft armament installation; 5.5 cm automatic recoilless aircraft gun MK-115; and development of light alloy steels for automatic weapons. Diagrams.

PB 14703. KREUZER "KÖLN". Schwingungsmessungen auf dem hinteren und vorderen Artilleriestand wahrend der Messfahrten in der Danziger Bucht am 11. 7.32, (Oscillation measurement on the front and rear gun position of the cruiser "Köln" during the sailing in the Danzig Bay, 11 July, 1932). (ALSOS Misson, Klotter File 12 j) Oct 1932. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
This report consists of a series of oscillograms taken aboard cruiser "Köln" with oscillographs placed at the front and rear gun position.

PB 16718. MCEWEN, EWEN. Notes on methods used in calculations of tank transmissions, Adlerwerke vorm. Heinrich Leyer A. G., Frankfurt/Main. (CIOS Rept, File XXXII - 36, Items 18 and 19). n.d. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
These notes are based on captured calculations made by Adler on the Maybach Transmissions for E-50 and E-75 medium tanks. The calculations are design office checks on gear rating and steering performance and are of interest to those concerned with similar calculations. A translation of the figures and calculations is reproduced in Appendix "A". Diagrams of layout and transmission are given.

PB 13774. SILBERSTEIN, RICHARD. A proposal for the use of rockets for the study of the ionosphere. (National Bureau of Standards. Interservice Radio Propagation Laboratory Report IRPL R10). 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
A proposal, based on the reputed German use of V2 guided missile, for the investigation of conditions in the ionosphere, the explosive charge of such missile to be replaced by measuring instruments.

PB 19849. SIMON, LESLIE E. German scientific establishments. Sep 1945. 235 p. Price: Microfilm - $2.50 - Photostat - $16.00
This comprehensive report covers scientific activities associated with ordnance which were conducted at research and development centers in Central Germany west of the Elbe. It is the result of American investigations into these activities. General descriptions of the places visited and more detailed accounts of the work conducted there are given. Special emphasis is made of research in ballistics; wind tunnels, rocket design, guided missiles, shock waves, cavity effect, armor penetration and ordnance engineering in its various phases are covered in detail. Photographs and drawings illustrate the ordnance pieces described and there are pictures of some of the research centers. The chief centers visited were as follows: 1. The Hermann Göring Establishment for Ballistic Research and Measurements, of the Luftwaffe. 2.Hillersleben (Army Artillery Proving Ground). 3. Göttingen University (Aerodynamics). 4. The DVM Research Establishment (Lubeck). 5. Nordhausen (V-2 rockets). 6. The Technical Academy of the Luftwaffe (Berlin-Gatow). 7. The Kochel Aerodynamic Research Establishment. 8. Garmisch-Partenkirchen (Ballistics). 9. Ballistic Institute of the Technical Academy of the Luftwaffe (Biberach). 10. Berchtesgaden (Instruments, rockets, gliders). 11. Stuttgart (Ballistics, aerodynamics, bomb stabilization). There is a chapter describing the origin and organization of German research and development in general and a comprehensive bibliography of German reports of ordnance and electronic subjects.

PB 16727. TRAPP, O. J. Development and production of tungsten carbide cores for armour piercing shot by Friedrich Krupp A. G. (CIOS Rept, File XXX - 117, Item 21). June 1945. 40 p. Price: Microfilm-50¢ - Photostat-$3.00
Report investigates Krupp's method for producing tungsten carbide ammunition cores in the light of information that they were employing the "hot pressing" process on a large scale and they were known to have produced the great majority of German cores. Raw material production and the development of tungsten carbide ammunition are discussed. The development of factories, output and prices is outlined, followed by information on the production of tool tips. It was concluded that the Krupp procedure showed no noteworthy technical advance over Allied practice. Photographs of equipment and tables of properties and statistical data are given.

PB 15524. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: German antipersonnel mine. (Reg 2865) June 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The mine evaluated in this report consists of four main parts: Bottom case, cover, glass bottle with an inserted metal cap and fuse well, and fuse. No fuse accompanied this mine. The cap well accommodates the standard German blasting cap. The threaded section just above the cap well fits the standard German male fuse threads. Accompanying photograph will not reproduce well.

PB 11495. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: German primacord net, EB Reg 2273. Mar 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
This captured German primacord net is 32 feet long and 8 feet wide. The size of the squares is 5½" - 6" and the explosive weight per square foot is 0.095 pounds. The net is probably used in clearing antipersonnel mines, but the method of getting the net over an area is not known. Complete destruction of the net can be accomplished by priming with one non-electric or electric cap. Six photographs.

PB 15453. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: German pull type igniter. (Reg. 2455). Mar 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The subject item is made of brass and is approximately 1½ inches in length and ½ inch in diameter. It consists of a full ring, a striker in two sections, striker spring, igniter body and percussion cap assembly. A pull of between 10 - 12 pounds will function the igniter. Photograph is included.

PB 15450. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: German safety fuse, EB 2448. (Reg. 2448). Mar 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The fuse is covered with a smooth dark-brown plastic material, and is approximately 0.237 inches in diameter. The burning rate is about 2 feet per minute. Photograph is included.

PB 15967. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: Mine, antitank, light, MB Reg 9004. Jun 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief evaluation report on a light, antitank mine. Photographs are included.

PB 15399 WESTON, B. A. Deutsch Waffen Munitions Fabrik, Schlutup near Lubeck. (BIOS Evaluation Report 311). Jan 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The 20mm HE/ Tracer round having self destruction device was examined in detail here, except for the HE filling which was located in the Russian zone. Another type of S. D. base tracer in which the tracer is a separate component, and is screwed in with a friction tool, electric motor driven, is also described. Case loading of 20 mm is done on Deutsche Waffen M/Cs which are four multiple and deliver weighed charges into cartridge cases trayed up in ten rows of 4 at the rate of 12,000 per hour (but this speed seems unlikely for a weighing M/C). Stocks of ammunition in factory are listed. This information was obtained from visit to factory October 23, 1945.

PB 16729. WIESER, CHARLES R. Remote control system built by Askania for bomber gun turrets. (CIOS Rept File XXXII-54, Items 2,9, and 27). Jul-Aug 1945. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
The remote control system described in this report was designed and built by Askania Werke A. G. of Berlin to position a bomber gun turret mounting twin 2.0 cm guns, or one 3.0 cm. gun, or twin 4.0 cm. guns. Samples were ready for test installation in July 1944 but only a few installations were made because of the shortage of aircraft for test service. The twin 3.0 cm. gun installation was never tested in an aircraft. The remote control system consists of two identical servomechanisms, one for azimuth, and one for elevation. Laboratory data, together with available design data, indicate that this is a satisfactory remote control system except for its input power requirement of 12 KW continuous input. Block and schematic diagrams and photographs are given.

Italian

PB 15429. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: Italian hollow demolition charge, 5 Kg. (Reg. 10). Feb 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains a brief description and evaluation of Italian 5 Kg. hollow demolition charge. Two photographs are included.

PB 15428. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: Italian hollow demolition charge, 20 Kg. (Reg. 11) Feb 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains a brief description and evaluation of this demolition charge. Two photographs are included.

Japanese

PB 17399. CHRISTENSEN, PAUL L. and others. Research, development, and production: Japanese army ammunition and components, bombs, mines, and grenades. (Ordnance Tech Intelligence Rept 5) 1946. 91 p. Price: Microfilm-$1.00 - Photostat-$7.00
A survey was made of Japanese Ordnance industrial methods and production processes with special emphasis on new techniques and items. It was found that most of the plants had either been destroyed or stripped of equipment and personnel dispersed so that all information had to be gathered by interrogation. In the field of ammunition the organization to carry out research, development, and production seemed to be adequate and similar to that in the U. S., but the research laboratories were established too late and also were harassed with production problems caused by lack of raw materials. Very few machines observed were automatic and all were worn to such an extent that quantity and quality of ammunition were badly affected. Photographs are included.

PB 17535. DELSASSO, LEWIS. Japanese experiments with the electromagnetic gun. (Ordnance Tech Intelligence Rept 17) Jan 1946. 13 p. Price: Microfilm-$1.00 Photostat-$1.00
The aim of the electromagnetic gun program undertaken by the Japanese 7th Army Technical Research Laboratory and the Tokyo Shibaura Electric Co. during 1942-1944 to produce a gun firing a 22.2 lb. projectile at a muzzle velocity of of 6500 ft. per second. As a first step, an installation was designed and built to give a muzzle velocity of 1800 ft. per sec. Tests showed that the equipment did not perform as expected, and that an 1100 ft. per sec. velocity only could be attained using a 4.4 lb. projectile. The designers believe that with their present experience they could make the equipment perform more nearly as projected. However, even with the equipment meeting predicted performance the complexity of the setup seems to limit its usefulness greatly, and certainly restricts it to large fixed installations. When the equipment did not meet the expectations it was converted, as a salvage operation, into test equipment for firing experimental finned projectiles where powder propulsion was not desirable. Photographs are included. This report was issued by office of the Chief Ordnance Officer, General Headquarters, Army Forces, Pacific.

Russian

PB 15974. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: Antitank - antipersonnel mine MB 9000. Mar 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief report on Russian PMS40 antitank and antipersonnel mine similar to the U. S. heavy antitank mine M5. A photograph is included.

PB 15968. U. S. WAR DEPARTMENT. CORPS OF ENGINEERS. ENGINEER BOARD. Captured foreign materiel: Russian antipersonnel cardboard mine PMK MB Reg 9003. Jun 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
A brief report is given on Russian antipersonnel cardboard mine PMK40. Photographs are included.

United States

PB 17235. ADAMS, J. H. Test of Permanente Metals Corp., 500-lb., incendary bomb. (Chem Warfare Serv Tech Div Memo Rept TDMR 925) 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
Static and drop tests were performed with results indicating that when a 500-lb general purpose bomb, modified for tail ejection and filled with a mixture of crude magnesium dust (Hansgirg Process), petroleum distillate, asphalt residue (0-120), crude sodium nitrate (saltpeter), and lead oxide, wrapped in burlap cloth, was fired statically, good incendiary effect was obtained. When the same combination is dropped onto an industrial type structure, the performance was unsatisfactory due to the inability of the filling to withstand the combined forces of impact and explosive shock. Tables and a diagram are included.

PB 16186. BACKSTROM, HAROLD O. Functioning of M2XXRI bombs at sub-zero temperature. (CWS Tech Div Memo Rept 1070) Jun 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
M2XXRI bomb elements were packed in dry ice and fired statically at temperatures as low as -94°F. to -112°F. No impairment of function or burning rate was noted at temper-

atures above -40°F. Completely assembled E23XRI bombs were packed in dry ice and dropped at low temperatures from an airplane at 1,000 foot altitude onto concrete. Impairment of functioning at an increasing rate below -40°F. was noted. Bombs which were allowed to return to ambient temperatures functioned normally, thus indicating no deterioration due to the low temperatures. Tables and a graph included.

PB 15644. BLACET, F. E. and ROOF, J. G. Persistence experiments with sulfur dioxide in a wooded area: Progress report to May 31, 1943. (OSRD Rept 1569) Jun 1943. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
In all experiments performed, complete meteorological data were taken. Special attention is directed to experiment E34 in which a concentration of over three milligrams per liter was set up at a distance of 110 feet from the exploded bomb for a period of thirty minutes. This long persistent concentration would suffice to break the known gas mask canisters if the gas had been cyanogen chloride. It is evident that nonpersistent agents would be exceedingly effective. Map and tables are given. This is a progress report under contract with Northwestern University.

PB 17211. BOLGIANO, R. E. Development of 7.2-in. incendiary rocket head E1. (CWS Tech Div Memo Rept 907) Nov 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
Modification of the existing 7.2-in. rocket head by substituting a new adapter in the nose and adding the required burster, igniter assembly and filling resulted in rocket head E2. In static tests complete burst of the rocket head was obtained and burning gel was scattered to a radius of 60 yds. Eight rockets were fired at a range of 3,500 yds; the distribution pattern was equivalent to that obtained in the static tests. Diagrams and photographs are given.

PB 17209. BOLGIANO, R. E. Development of 8-in. incendiary rocket E2. (CWS Tech Div Memo Rept 893) Sep 1944. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
A preliminary design of the necessary elements to convert the AN-M30 bomb case for rocket use was made. In static tests complete burst of the rocket head was obtained and burning gel was scattered to a radius of approximately 60 yd. Five rockets were fired singly from a 4.5-in. vehicular mount launcher; all functioned and gave very satisfactory bursts and incendiary action. Diagrams and photographs are included.

PB 16164. BOLGIANO, R. E. Development of 7.2-in. incendiary rocket head E27. (CWS Tech Div Memo Rept 1146) Oct 1943. 23 p. Price: Microfilm -50¢ - Photostat-$2.00
As a result of the experiments described herein, two incendiary rockets were developed: the E27 which has a tetryl burster and WP igniter, and the E27R2 which has a magnesium-black powder igniter-burster and requires no modification of the T-37 metal rocket head. It was recommended that the 7.2-in. E27R2 incendiary rocket, PT-1 filled, be standardized should the need for an incendiary rocket arise. Drawings and photographs included.

PB 17212. BRIDGES, D. A. Development of 2.36 inch rocket for thermite filling. (CWS Tech Div Memo Rept 966) Jan 1945. 33 p. Price: Microfilm-50¢ - Photostat-$3.00
This report traces the development of a thermite filled rocket suitable for launching from the Ordnance Department series of launchers known as the "Bazooka". Results of function and ignition tests are tabulated. Diagrams and photographs are included.

PB 17231. BROWN, WILTON. Colored oil smoke from smoke generators of the flash boiler type. (Chem Warfare Serv Tech Div Memo Rept TDMR 921) 1945. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
The solubility of various dyes in a number of solvents was tested and results recorded in tabular form. Most of the work was conducted on Oil Blue NA, Oil Blue AA, and Oil Orange 1293 at a temperature range from 700 to 1,000° F. The results of all colored smoke runs were recorded in tables, and kodacolor aerial photographs of blue, orange and white smoke clouds are included. It is concluded that the method of injecting concentrated dye solution into a small vaporization space just preceding the spray nozzle manifold is the most practical for producing colored oil smoke from the Oil Smoke Generator M1 (Mechanical). However, the coloring of oil smoke by means of dyes is not effective enough for camouflaging the source of the smoke, particularly in daylight. Bibliography and tables.

PB 17115. CARSON, J. S., and WOODBERRY, D. L. Incendiary, TH: Demonstration for Corps of Engineers. (CWS Tech Div Memo Rept 253) Nov 1940. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
The object of these tests was to demonstrate the functioning of various sizes of thermit incendiary units and their effect on "I" beams, concrete and coal. Photographs are given.

PB 17301. DALUGA, WILLIAM K. Air gun tests of the E9-R14 fuze (M 142) for bomb, chemical, 10 lb., E 5, (M74) incendiary filled. (Chem Warfare Serv Tech Div Memo Rept TDMR 932) 1944. 89 p. Price: Microfilm-$1.00 - Photostat-$6.00
Preliminary tests of the E5 Bomb with an instantaneous fuze (E9R11) were conducted on the air gun apparatus to calibrate the equipment, determine the penetration characteristics of the munition at various velocities, and to obtain an estimation of the ejection characteristics. At the terminal velocity of the munition (425 f.p.s.) the tests indicated that a 2 in. pine board was readily penetrated and that the bomb was not retarded sufficiently to obtain ejection at the desired position. Tests were made on various modifications of the E9 fuze in an attempt to speed up the fuze action and E9R14 fuze was developed. Data are presented in tabular form and photographs are included.

PB 17232. DRISKELL, J. C. and GINMAN, W. K. Colored smokes, bursting type 4.2 in. chemical mortar shell M-72. (Chem Warfare Serv Tech Div Memo Rept TDMR 923) 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Colored smoke fillings in 4 colors have been developed for the 4.2 in. chemical mortar shell. The colored smoke clouds produced when the shell is fired with a time fuze to give an air burst are visible for a distance of more than three miles and are persistent for several minutes, depending upon the wind velocity. The impact burst produced by the M5 (M39-B6) fuze has not proved satisfactory with the M3 shell. However, by using the modified M3 shell, having a screwed on base plate (M76), a good ground burst results. Since this shell air bursts equal to the M3, its use is recommended for both air and ground burst, using the M5 M39B5 SQT fuze. Tables.

PB 17225. DRISKELL, J. C. and ZIZMOR, M. A. Colored smoke 2.36 inch rocket T-32 streamer. (Chem Warfare Service Tech Div Memo Rept TDMR 977) 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Satisfactory formulas have been developed for a colored smoke filling for the 2.36 inch rocket head to be used as a signaling munition between ground troops and between ground and air. Firing test data are presented in tabular form. Photographs.

PB 17298. DRISKELL, J. C. and MAGRAN, S. J. Smoke marker for parachute delivery container, M22. (Chem Warfare Serv Tech Div Memo Rept TDMR 1003) 1945. 39 p. Price: Microfilm-50¢ - Photostat-$3.00
Colored smoke markers, red, yellow, green, and violet, having satisfactory function of delay, smoke filling and mechanical parts, have been developed to a point where a pilot plant loading of several hundred is necessary for more extensive testing. Tables present test data, and appendices contain a photograph and project specifications for M4.8-1 smoke marker for parachute delivery containers.

PB 15753. ELKINS, H. B. and TUBBS, O. C. Efficiency of colored smoke grenades, M16. (CWS Tech Div Memo Rept 530). Jan 1943. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the measuring of the efficiency of the colored smoke grenades, M16 which were described in T. D.M.R. 497 and in CWS Specification no. 196-111-62. Conclusions are (1) from 38 to 72% of the dye is decomposed in the burning of the grenade and (2) the red dye is least decomposed and the yellow and blue dyes are decomposed the most. For T.D.M.R. 497, see PB 15754.

PB 15630. GILMAN, T. S. and HAYWARD, P. Smoke experiments carried out at Camp Sibert, Alabama: Progress rept to May 15, 1943. Aug 1943. 43 p. Price: Microfilm-50¢ - Photostat-$3.00 OSRD 1112
This report contains the results of observations and measurements on the travel of smoke from oil smoke generators. The variables were the spacing of the generators, wind velocity and wind gradient, wind direction, temperature gradient, and terrain. Both qualitative and quantitative conclusions were established. Significant conclusions regarding the operation of smoke generators are presented. The behavior of the smoke is correlated with measured meteorological quantities. The report attempts to place the use of smoke on a sound scientific and practical basis. Tables, graph, maps and photographs are included. This is a progress report under contract with California Institute of Technology.

PB 16122. HATTEN, B. W. Vehicle power train performance; T70-76mm gun motor carriage; dynamometer performance test. Vol. I of 3 volumes. (Chrysler Corporation, Engineering Div Tech Rept 61208.1,Vol. I). May 19, 1944. 136 p. Price: Microfilm-$1.50 - Photostat-$10.00
This test of a T70 gun motor carriage was conducted to obtain information concerning the torque and efficiency characteristics of the vehicle power train with variations in the throttle setting, and with different combinations of engines and power train gear ratios at full engine load. On the basis of test results, it was concluded that with part throttle engine loads the available torque varies roughly in proportion to the engine load. Part-throttle operation results in lower maximum power train efficiencies, and the peak efficiency is obtained at a lower vehicle speed in each gear position, as compared with wide open-throttle operation. Reductions in the speed of the engine at a given vehicle speed result in marked decreases in available sprocket torque. Therefore, it is recommended that the minimum governor setting be very close to the nominal setting of 2400 RPM at no load and then closely maintained in production. The proposed production combination (04 engine, 3.133 differential gear ratio, and 1.29 transfer gear ratio) gives the best overall wide-open-throttle vehicle performance of the five combinations tested. The maximum power train efficiency obtainable with any of the combinations tested is 74%. Graphs, photographs, and diagrams are included, and tables are appended.

PB 16074. HAYES, J. H. and ANDREWS, L. C. Smoke munition for airborne operations smoke bomb M3. (CWS Tech Div Memo Rept 823) Apr 1944. 105 p. Price: Microfilm-$1.50 - Photostat-$7.00
The object of these tests was: To determine the necessary modification in design of existing munitions, particularly bombs similar to the M-47 10 lb. bomb and standard smoke pots, so that they could be dropped from standard bomb racks in light bombardment planes at an altitude of 750 feet to produce a satisfactory, non-toxic smoke screen for a period of ten minutes; to design and test a bomb and clustering adapter which would function to meet these requirements; and to load and cluster a number of the developed bombs for approval. Satisfactory component parts, smoke mixtures and igniters were developed. Tables, specifications, assembly drawings, diagrams and photographs are included.

PB 10300. HESS, WILLIAM H. Engineering environmental tests on tester, battery load, vertical bomb. Jan. 15, 1946. (AAF ATSC Eng Div TSEPL-11E) 1946. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
Report on a series of engineering environmental tests performed on a vertical bomb battery load tester. A need existed for a tester which would provide a convenient means of applying a load to charged miniature vertical bomb batteries representative of the load imposed on the batteries of certain guided missiles during their fall. It was intended that the tester be included in Azon and Razon field kits for testing and servicing the respective missiles. Standardization was not accomplished because the urgency was eased by V-J day. Nine photographs.

PB 15752. HOLLINGSWORTH, HENRY L. and HENDRIX, A.E.F. Functioning of M67 and M69 bombs, HS-filled. (CWS Tech Div Memo Rept 542) Jul 1944. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
Tests are described, conclusions being (1) a smokeless powder, NC, is feasible to use for the booster and ejection charges in 5 or 6 lb. chemical bombs M1 (later M69) filled with HS (mustard gas) and (2) a 0.5-g. N.C. propellent powder booster charge plus a 2-g. ejection charge of N.C. propellent powder is satisfactory for the M67 bomb when filled with liquid HS, frozen HS or liquid AC (hydrocyanic acid). Graphs and photographs.

PB 15632. JOHNSTONE, H. F. and ROACH, P. G. A study of oil smoke plumes by motion pictures: Progress rept to June 15, 1943. (OSRD Rept 1697). Aug 6, 1943. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This report is meant to accompany a motion picture film demonstrating the effect of type of generator, location and spacing of the units, meteorological conditions and topographical and vegetative features on the behavior of smoke clouds. Technique and conclusions are given. Temperature gradient and wind speed were found the most important factors influencing the travel of a smoke cloud over open terrain. This is a progress report under contract with University of Illinois, the experiments being performed at Camp Sibert, Alabama.

PB 17298. JUNGBAUER, JOHN J. The development of rocket, smoke, WP, 236 inch M10. (Chem Warfare Serv Tech Div Memo Rept TDMR 1020) 1945. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
Tests reported herein resulted in the development of a rocket which is 17-1/8" long, and 2.30" in diameter. The total weight of the complete round is 3.4 lb.; the weight of WP is approximately 0.9 lbs. The complete round was found to be satisfactory ballistically, as well as positive functioning. The burst of the round on impact resulted in a satisfactory smoke screen. Storage under simulated desert conditions for 87 days was accomplished without leakage of the filling. Photographs and tables are included.

PB 17230. JUNGBAUER, JOHN J. Report on an investigation of the press fit seal of the 7.2 inch rocket body, T21. (Chem Warfare Serv Tech Memo Rept TDMR 920) 1944. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
Test data presented in tabular and graphic form indicate that at a pressing rate of 1/2 inch per minute, the 7.2-inch rocket body, T21, Drawing TAM 308, will withstand a vertical load of 5650 lb., without passing its yield point. The optimum range of interference for parts made in accordance with Ordnance Drawing TAM 308 is 0.003 in. to 0.007 in.

PB 16454. KAPPAUF, WILLIAM E. Need for a check sight on the mark 15 gun sight and on all sights of a similar nature. (NDRC Applied Psychology Panel Rept 80) Jan 1944. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
The purpose of this memorandum was to point out that the mark 15 gun sight then in production included no check sight and to call attention to the fact that some provisions for check sighting on this gun sight must be made if training in the operation of this new equipment, especially shipboard training, was to be effective. Requirements for a check sight specified that: (1) It should be an integral part of the mark 15 gun sight and that consideration should be given to redesigning the telescope in the gun sight so that the check sight could be introduced in the telescope axis between the reticle and eye piece; (2) it must be so mounted

that an instructor can use it at any angle of elevation of the director; (3) it must be so mounted that the instructor can easily stand clear of the director.

PB 17254. KLINE, SETH Q. and others. Development of quick-opening cluster adapters M4, M5, M6, M7 and M8 for incendiary bombs. (Chem Warfare Serv Tech Div Memo Rept TDMR 1015) 1945. 44 p. Price: Microfilm-50¢ - Photostat-$3.00

The following cluster adapters of the quick-opening type were developed and tested in accordance with the military and technical characteristics in project specification B11.3-4: Adapter M4, 100-lb., containing 14 bombs AN-M69; adapter M5, 100-lb., containing 51 bombs AN-M52 or 34 bombs AN-M50; adapter M6, 500-lb., containing 128 bombs AN-M50 or AN-M54; adapter M7, 500-lb., containing 60 bombs AN-M69; and adapter M8, 500-lb., containing 192 bombs AN-M52. These adapters were found suitable for dropping from airplanes in the form of clusters. Photographs.

PB 17206. LONG, E. K. and WRIGHT, D. D. A canister humidifier for the CWS base laboratory M2. (CWS Tech Div Memo Rept 891) Sep 1944. 42 p. Price: Microfilm - 50¢ - Photostat - $3.00

This report describes development and operation of a humidifier constructed wholly with equipment and of materials available to the personnel of a CWS Base Laboratory M2 in a theater of operations. It is capable of conditioning a flow of 175 l./min. of dry air to a relative humidity of 80%. The humidity may be held within a maximum deviation of 2% from the desired value. Diagrams, graphs and tables are given.

PB 13756. MACGREGOR, C. W., and COFFIN, L. F. Jr. The effect of various theories of strength on the design of built-up guns (In three parts). Part III: Application to recently designed 12 and 16 inch guns. (M.I.T. Research Lab for Mechanics of Materials Rept 1) Jan 1943. 72 p. Price: Microfilm-$1.00 - Photostat-$5.00

This is the third of three parts making up the complete report. Included in Part III are calculations and comparisons of the strength of recently designed 12 and 16 inch guns using the distortion energy theory and the maximum strain theory. From the information assembled in this part of the report, the authors make the following recommendations: (1) that the Distortion Energy Theory be adopted as the basis for design of built-up guns considered; and (2) that the various form tube sections of the guns submitted be redesigned from the standpoint of shrinkages to give sufficient factors of safety for the states of action and rest in conformity with the Distortion Energy Theory. Tables and two drawings of shrinkages, strength, velocity and pressure curves for 12 in gun mark VIII and 16 in gun Mark VII are included.

PB 17213. McLAIN, J. H. and MAYER, S. Delay trains for use in the floating smoke pot. (CWS Tech Div Memo Rept 732) Sep 18, 1943. 26 p. Price: Microfilm - 50¢ - Photostat - $2.00

Gasless delay trains containing two types of filling were prepared, tested and found satisfactory. Type 1 filling consisted of red lead 49.8%, silicon 45.0% and aluminum 5.2%. Type 2 consisted of red lead 90.8 and silicon 9.2%. Both withstood rough handling and surveillance testing, but type 2 was found less sensitive to ignition by frictional impact. Tables and a graph are included.

PB 17226. McLAIN, J. H. and FAIRCHILD, A. C. Modified M4A2 floating smoke pots for use from aircraft. (Chem Warfare Serv Tech Div Memo Rept TDMR 908) 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00

The floating smoke pot designated as M4A2, is a 5 gallon steel pail containing 25 pounds of slow burning HC mixture and 2 pounds of fast burning mixture. The M201 fuze is used to ignite an igniter tube which in turn ignites the starter mix after a delay of 10 to 20 seconds. The pot then burns and emits a good volume of smoke for 10-15 minutes. A modification consisting of removal of the bail handle and the addition of a canvas tail 18 inches wide, 27 inches long with a 12 inch pocket was tested in clusters of four and found satisfactory. Photographs.

PB 15754. MAGRAM, S. J. and FINKELSTEIN, L. Colored smoke grenades, M16. (CWS. T.D.M.R. 497) Dec 1942. 44 p. Price: Microfilm-50¢ - Photostat-$3.00

In this report is recorded the development of smoke mixtures to produce yellow, orange, green, red, violet, blue and black smoke visible for a distance of one mile in daylight during a period of two minutes when burned in an M7 grenade body - For F.D.M.R. 530 on the efficiency of the grenade, see PB 15753.

PB 17233. MAGRAM, SIDNEY, J Filling for ignition cartridge of portable flame thrower. (Chem Warfare Serv Tech Div Memo Rept TDMR 1001) 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00

A satisfactory incendiary filling for the ignition cartridge of the flame thrower was developed. It consisted of a pellet .416 in. in diameter and .65 in. long with the following composition: Ammonium perchlorate 45%, sucrose 13%, asphaltum 2%, aluminum, grained 30%, aluminum 10%. A satisfactory starter for the incendiary filling was also developed. Tables.

PB 16737. MARMER, NANCY and MCCLURE, F. T. The reduced specific impulse of ideal gases. (OSRD Rept 5548) Oct 1945. 46 p. Price: Microfilm-50¢ - Photostat-$4.00

A report from Allegany Ballistics Laboratory, Cumberland, Md., operated by George Washington University under OSRD contract OEMsr-273. This report consists of:

I Introduction
II Method of calculation: (A) Conditions along the nozzle. (B) The reduced specific impulse. (C) The line of maxima.
III Useful Formulas: (1) Specific impulse. (2) Effective gas velocity. (3) Discharge coefficient. (4) Thrust coefficient. (5) Mass rate of discharge. (6) Thrust. (7) Ideal velocity of Rocket.
IV Sample calculations
V Relationship of computed to observed quantities.
VI Tables and graphs.

PB 15773. MILES, GEORGE E. Frangible grenade, (FS), M1. Effect of leakage when packed according to C.W.S. specification 196-111-41. (CWS T.D.M.R. 538) Jan 1943. 6 p. Price: Microfilm-50¢ - Photostat-$1.00

This report describes the tests to determine the effect of leakage of FS-filled (55% solution of sulfur trioxide in chlorosulphonic acid) frangible grenades (a 17 3/8 oz. overflow capacity bottle containing a little over 15 oz. of FS and capped with a 26 mm. crown cap, cork backing and a 0.003 inch nickel-foil liner).

PB 15750. MUNRO, WENDELL P. Colored smokes; development of smoke canister, 105 mm. base ejection shell, M84. (CWS Tech Div Memo Rept 561) May 1943. 14 p. Price: Microfilm-50¢ - Photostat-$1.00

This report records the results of experiments to adapt colored smoke fillers to the 105 mm base ejection shell M84.

PB 17303. NORTON, E. E. Breakdown test of oil smoke generator M2. (Chem Warfare Serv TDMR 934) 1944. 36 p. Price: Microfilm-50¢ - Photostat-$3.00

The development of a large-capacity mobile type oil-smoke generator, determining the operational, functional and mechanical reliability of smoke generator M2, and a checking of spare parts requirements. The test was conducted without interruption for 743 hours, actual operating being 655 hours. The M2 generator is mechanically sound. The principal components have a life of well over 500 hours of continuous operation.

PB 16869. OBERTH, HERMANN. Ground launched antiaircraft (controlled). (AAF AFSC. T-2 Translation 444) Sep 1945. 24 p. Price: Microfilm-50¢ - Photostat-$2.00

One of Germany's pioneer rocket technicians discusses the development of the ground launched antiaircraft rocket in

the report. The problems and constructional considerations of rocket design are covered and the manufacturing techniques are considered. General requirements for such a rocket include the necessity for range of 50 km. and altitude of 20 km., speed of 800/1000 meters per second, gyro and radio direction control, and a drum arrangement to facilitate such control. Information is given on the measuring of the rate of combustion, adjusting of the exhaust jet to assure steady combustion, type of propulsion charge to get best results, and protection of the powder charge from dampness. There are five sketches showing the complete rocket, the change-over drum, and the safety jet. Drawings of testing apparatus are lacking.

PB 17210. ORTYNSKY, R. L. The M126-A1 nose fuze for the M47-A2 100 lb. incendiary bomb. (CWS Tech Div Memo Rept 903) Oct 1944. 45 p. Price: Microfilm-50¢ - Photostat-$3.00
Performance data are given on tests of 733 M126-A1 nose fuzes under various conditions of impact surface over an altitude range of 50 to 15,000 feet and 49 experimental M126 fuses over an altitude range of 1,000 to 5,000 feet. Tables and photographs are given.

PB 17228. ORTYNSKY, R. L. and others. Tests of M47-A2, 100 lb. incendiary bombs, PT-filled, at Eglin Field, Florida, September 1944. (Chem Warfare Serv Tech Div Memo Rept TDMR 916) 1944. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
Ninety-two M47-A2, 100 lb. incendiary bombs, PT filled, were dropped onto the industrial target from an altitude of 10,000 feet, and data pertaining to hits summarized in tabular form. Neither the fast nor the slow burning PT incendiary mix is satisfactory for use in the M47-A2 bomb when dropped onto an industrial target from an altitude of 10,000 feet, since the filling is shattered excessively.

PB 15780. ORTYNSKY, R. L. Use of hydrofol and stearic acid in IM type I incendiary oil. (CWS T.D.M.R.565) Mar 1943. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report records the results of tests made to determine the feasibility of using hydrofol (a hydrogenated fish oil consisting principally of stearic acid but containing also some palmitic acid) instead of stearic acid. The project was undertaken to develop incendiary oils containing non-strategic materials for use in incendiary bombs.

PB 5263, 5264, 5267, 5268, 5269. SMALL DEVELOPMENT COMPANY, EMERYVILLE, CALIFORNIA. Study of fuels for flame throwers: Monthly progress reports November 15, 1943 - May 15, 1944. PB 5263, Apr 1944, 1 p; PB 5264, May 1944, 2 p; PB 5267, Mar 1944, 1 p; PB 5268, Feb 1944, 5 p; PB 5269, Dec 1943, 5 p. Price: (each) Microfilm-50¢ - Photostat-$1.00
Research was done on oxidation of the soap, Nuodex napalm #17965, and on the effect of water and alphanil on napalm gel breakdown. Analysis of napthenic acids was made. Performance tests were made on the Klaas flame thrower, particularly on a method to maintain range with falling nitrogen pressure. Range tests with the simplified nozzle (Model I) verified the fact that, under exactly similar conditions, the range obtained with this nozzle is at least equal to that obtained with the Klaas gun. Experiments were made on improving ignition by "scratching" the surface of the rod fuel with fine wires. This device made ignition possible in a cross wind. Four "scratchers" set at 90° give the best ignition results. One completed Model I flame thrower was submitted to a series of full scale tests. With fuels varying from 2.5 to 8 per cent napalm, ignition by means of the atomized gasoline igniter was 100% under all conditions of wind and temperature experienced.

PB 15344. SMITH, R. F. and WOODBERRY, D. L. Chemical Bomb T6E1, 100-lb., Engineering Test at Aberdeen Proving Ground. (CWS Tech Div Memo Rept 205) Dec 1939. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
A report on the distribution of simulated HS from the 100-lb. chemical bomb T6E1 when dropped from 8000 ft. altitude and when fired statically.

PB 17098. SMITH, R. F. Chemical land mine, 1-gal... surveillance of mines filled with HS from lots 2709 and ... (Chem Warfare Serv Tech Div Memo Rept 180) Jul 1939. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
The object was to determine whether subject lots could be stored in chemical land mines, 1-gallon, without causing ... due deterioration of, or excessive pressure in, the case. Tables are given.

PB 17299. SMITH, L. L. Cause of breaking of 4.2-in. chemical mortar shell, FS filled, in or near mortar barrel. (Chem Warfare Serv Tech Div Memo Rept TDMR 1019) 194... 23 p. Price: Microfilm-50¢ - Photostat-$2.00
Results of physical examination and test firing show that the causes of breaking in the 4.2-in C.M. shell, FS filled, were an increased hardness in the shell casing along the vane (brittle condition) and an increased stress on the ... during low angle firing. The brittle condition of the ... casing is not an inherent characteristic but a condition caused by improper welding technique during the welding of the vane to the shell. Tables and photographs are included.

PB 17296. SMITH, L. L. Sympathetic detonation of stacked 4.2-in. chemical mortar shell, HE, M3. (Chem Warfare Serv Tech Div Memo Rept TDMR 1013) 1945. 3... Price: Microfilm-50¢ - Photostat-$2.00
One shell in five, all of them stacked in standard packing boxes, were detonated electrically and caused all the shell to explode. The same results were obtained with ten shell in packing. A shell was similarly detonated at distances 5, 21, 26, 48, 54, and 60 inches from a stack of five shell in packing boxes and one at 54 in. from a stack of ten shell. Sympathetic detonation of one or more shell in the stack was observed for all distances under 54 inches. Photographs are included.

PB 15778. STONE, DEWITT B. Pilot incendiary filling plant. Report of work January 1, 1942 to June 19, 1942. (CWS Tech Div Memo Rept 558) Jun 1943. 80 p. Price: Microfilm-$1.00 - Photostat-$6.00
This is a complete report on the design, installation of equipment and results of operation of a 4 lb. incendiary filling plant at Edgewood Arsenal. The report is illustrated with a series of clear photographs of the installed equipment.

PB 10125. TAUCHEL, M. Firing tests on propeller blades, July 5, 1944. (AAF Eng. Div. EXO-52-587-25-1) Jul 1944. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Tests conducted at Wright Field showed that the firing of 5.8 gram projectiles with muzzle velocities of 1900, 1500, or 1300 f.p.s. against P-47 type hollow steel or aluminum alloy propeller blades from a distance of 50 yards or greater will not cause any damage to the blades that will prevent an airplane in flight from returning safely to its base or that cannot be repaired so that there will be no need to replace the blades with new ones. One photograph.

PB 16843. U. S. ARMY AIR FORCES. AIR TECHNICAL SERVICE COMMAND. Preliminary report on the question of aerodynamic damping and dynamic stability. (T-2 Translation 399) Oct 1939. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
The question of reduction of oscillations of rocket projectiles due to friction of the air is considered by German scientists in this report which has been translated by AAF intelligence investigators. The object of the study is to get information necessary for the design and measuring of rocket control mechanisms. The damping effect reduces the moment requirements of the control machine and under certain conditions helps provide stability with only a control gyro. Information on the mathematical and aerodynamic considerations of the damping moment as evidenced by tests made at Friedrichshafen make up the bulk of the report.

PACKING AND PACKAGING

PB 10127. BERNARD, WILLIAM. Design of a container for self-sealing rubber hose Jan 24, 1946. (AAF ATSC Memo Rept EST-6-187) Jan 1946. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of tests to develop an adequate container for export shipment of self-sealing rubber hose. It was concluded that cleated plywood boxes constructed according to Specification JAN-P-105 are satisfactory for shipment with or without the use of a reel on which to wind the hose. It was recommended that a box without a reel be used since it would reduce the cost of packaging.

PB 11862. HORTON, A. W. Packaging spark plugs. (AAF ATSC Memo Rept ESM-102). Aug 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Tests were conducted on the adequacy of the manufacturer's method of packaging Champion Spark Plugs. The spark plugs were enclosed in a heat sealed paper envelope in a cardboard carton. Paper was of low tensile strength, poorly sealed and already full of holes, where the spark plugs had punctured them. At the beginning of the test, 2 packages were overwrapped with waterproof paper and sealed with waterproof tape; 2 were overwrapped with grade C paper and wax-dipped; 2 spark plugs were removed from the paper and replaced in the carton which were overwrapped with grade C paper and wax-dipped. The remainder of the manufacturer's packages were exposed without further wrapping. After 14 days in the tropical room, all plugs which had not been protected by wax-dipping were corroded on both brass contacts and steel outer surfaces. A good moisture-vaporproof barrier such as microcrystalline wax is recommended without the use of a contact preservative.

PB 10128. RUSSELL, J. R. Testing of pack for self-sealing rubber hose. Jan. 31, 1946. (ATSC Memo Rept EST-6-188) Jan 1946. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of tests to develop an adequate container for domestic and export shipment of self-sealing rubber hose. A wooden reel was bolted to the bottom of a new plywood box constructed in accordance with Specification JAN-P-105 and the cover fastened with nails, and two straps placed length-wise and one girthwise. It was then subjected to 103 falls in a 14-foot drum. When opened the hose was still in place and not kinked. It was recommended that this redesigned pack be used for shipment. Specifications AN-H-27 were changed to include modifications developed in these tests.

PB 10286. SOPCAK, O. F. Re-usable packaging containers. January 11, 1946. (Army Air Forces. Eng. Div. TSEPE-655-1438). Jan 1946. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of a conference held at the Equipment Laboratory, Wright Field, regarding the use of metal containers, preferably re-usable, for packaging small and delicate equipment, such as Class 03 and 05 items of aircraft supply. Recommendations were made regarding the revising of specifications to include this type of packaging, the supplying of these metal containers to contractors by the government, and the re-using of the containers.

PB 11872. TURNDAHL, H. T. Testing of steel shipping container for R-2600 and R-2800 engines. (AFF ATSC Memo Rept. TSEEE-4-74). May 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Tests were conducted to determine the ability of the container to withstand any rough handling which might occur during overseas shipment and to maintain an airtight, moisture impervious seal, thereby protecting the engine from corrosion. The Youngstown Steel Door Company drum is cylindrical with 1/8" steel plate sides and 3/8" steel plate top and bottom. The engine is mounted on wooden skids with Lord Company shock mounts. The drum is shipped under a pressure of 5# per square inch gage, and will float when properly sealed. Drop tests and tip-over tests were performed. It was recommended that the diameter of the drum be increased to decrease the possibility of the engine striking the sides of the drum, that the shock mounts be redesigned to increase their load characteristics, that the size of the bolts securing the engine to the drum be increased and also that containers be developed which would be adaptable for R-2380, R-2800 and R-2600 engines.

PB 11081. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Carloading composite steel bodies S.U.F.M. October 3, 1944. (O.P.C. Instructions 156, Amendment 1) 1944. 8 p. Price: Microfilm - 50¢ - Photostat - $1.00
Amendment 1, to previous instructions on carloading composite steel bodies. Two pages give general instructions on loading and securing the load in the railroad car. Three pages are drawings of rub rail protectors, body sill rack and dual band iron tie down plate used in placing and securing the load.

PB 11082. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Carloading composite steel bodies S.U.F.M. November 22, 1944. (O.P.C. Instructions 156, Amendment 2) 1944. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
Amendment No. 2 to carloading composite steel bodies S.U.F.M. Gives 2 additional drawings of parts to be used for securing loads. One page is a table showing quantity of part pieces to secure each body, with name, number and size of each, its wood group, and reference to the drawing picturing the part or its use.

PB 11076. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Cross country kit for truck 2-1/2 ton 6 x 6, 7-tire and wheel assemblies, 1-extra tire, tire size 10.50 x 18 export packing procedure. Single unit pack (S.U.P.). (O.P.C. Instructions 147). Jul 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
This instruction book gives the procedure to follow in packing the cross country kit for the 2-1/2 ton 6 x 6 truck. It contains information on corrosion preventive procedure and packaging prior to crating. Construction of the container is subdivided as follows: Lumber, nailing schedule, board measure, and corner irons. There are six assembly drawings of the various panels, a detailed bill of material, and general nailing instructions with two illustrations.

PB 11096. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Export cover for tractor, high speed, 38 ton, M6, Allis-Chalmers. Export packing procedure. Single unit pack (S.U.P.). (O.P.C. Instructions 171). Nov 1944. 18 p. Price: Microfilm-50¢ - Photostat-$2.00
Instructions are given for disassembly of vehicle prior to adding cover, corrosion preventive procedure, and prepacking prior to adding cover. The preparation of the tractor for shipment is illustrated by three photographs. Instructions are given for construction of the container covers: lumber, weatherproofing, nailing schedule, corner irons, painting procedure, diagonals and streets, and eight assembly drawings.

PB 16934. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for combination fuze setter rammer M20. (Packaging Instruction AFPS-207) 1945. 30 p. Price: Microfilm-50¢ - Photostat-$2.00
The chart of details for the preservation of parts for the fuze setter rammer is appended to the general provisions for packing spare parts. Prepared under the direction of the Chief of Ordnance, Fire Control Sub-Office, Frankford Arsenal.

PB 16941. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for 37 mm gun carriages. (Packaging Instruction AFPS-200-1) 1945. 35 p. Price: Microfilm-50¢ - Photostat-$3.00

Chart of details for preservation of parts for 37 mm gun carriages is appended to the general provisions for packing spare parts. Prepared under the direction of the Chief of Ordnance, Fire Control Sub-Office, Frankford Arsenal.

PB 16940. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for 40 mm AA gun carriage. (Packaging Instruction AFPS-203) 1945. 44 p. Price: Microfilm-50¢ - Photostat-$3.00
A chart of details for preservation of parts for 40 mm AA gun carriage is appended to the general instructions for packing spare parts. Prepared under the direction of the Chief of Ordnance, Fire Control Sub-Office, Frankford Arsenal.

PB 16939. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for 90 MM gun carriage. (Packaging Instruction AFPS-204) 1945. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
A chart of details for preservation of parts for 90 mm gun carriage is appended to the general instructions for packing spare parts. Prepared under the direction of the Chief of Ordnance, Fire Control Sub-Office, Frankford Arsenal.

PB 16937. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for 120 mm A.A. gun mount. (Packaging Instruction AFPS-206) 1945. 38 p. Price: Microfilm-50¢ - Photostat-$3.00
The chart of details for the preservation of parts for the 120 mm A.A. gun mount is appended to the general instructions relative to packaging and packing of spare parts. Prepared under the Direction of the Chief of Ordnance, Fire Control Sub-Office, Frankford Arsenal.

PB 16938. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for mechanism, recoil 90 mm. (Packaging Instruction AFPS-205) 1945. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
A chart of details for the preservation of parts for the 90 mm recoil mechanism is appended to the general instructions for packing spare parts. Prepared under the direction of the Chief of Ordnance, Fire Control Sub-Office, Frankford Arsenal.

PB 16936. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for mechanism, recoil M19(T10). (Packaging Instruction AFPS-202-1). 1945. 32 p. Price: Microfilm-50¢ - Photostat-$3.00
These instructions are prepared for manufacturers in order to reduce handling, repacking, and reclassifying to a minimum. Prepared under direction of the Chief of Ordnance Fire Control Sub-Office, Frankford Arsenal.

PB 16935. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Instructions for cleaning, preservation and packaging of spare parts and assemblies for power ramner M9(T9). (Packaging Instruction AFPS-201-1). 1945. 27 p. Price: Microfilm-50¢ - Photostat-$2.00
A chart of details for preservation of parts for recoil mechanisms is appended to the general provisions for packing spare parts. Prepared under the direction of the Chief of Ordnance Fire Control Sub-Office, Frankford Arsenal.

PB 16953. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for adapters, telescope M12, M13. (Packaging Instruction AFPS-126) 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure for adapters, telescope M12, M13, have been prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 16972. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for binoculars 7 x 50 W/R. (Packaging Instruction AFPS-162 rev. 3) 1945. 21 p. Price: Microfilm-50¢ - Photostat-$2.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Deprtment, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17172. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for binoculars M7, M14 & M16. (Packaging Instruction AFPS-87) 1944. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the binoculars to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photograph of the binoculars with carrying case and strap.

PB 17171. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for binoculars, M15, M17, W/R. (Packaging Instruction AFPS-88-1) 1945. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for the packing of the binoculars to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photograph of the binoculars and their carrying case.

PB 17189. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for board, plotting and relocating M1923. (Packaging Instruction AFPS-112) 1944. 19 p. Price: Microfilm - 50¢ - Photostat - $2.00
This instruction for packing the plotting and relocating board was prepared under direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal.

PB 16985. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for board deflection M1. (Packaging Instruction AFPS-148) 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16969. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for board, plotting, M3 or M4, W/R. (Packaging Instruction AFPS-132) 1945. 19 p. Price: Microfilm-50¢ - Photostat-$2.00
Instructions and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16988. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for board plotting M5 (for flash ranging). (Packaging Instruction AFPS-145). 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16989. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for board plotting sound ranging. (Packaging Instruction AFPS-144) 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16933. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for board spotting M7. (Packaging Instruction AFPS-163) 1945. 25 p. Price: Microfilm-50¢ - Photostat-$2.00

The instructions and packaging procedure in this document were prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal, for an M7 spotting board and its accessories, items which require special packaging to prevent damage during shipment and storage. Photographs and diagrams.

PB 17174. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for clinometer, M1912A1, W/E. (Packaging Instruction AFPS 85-1) 1945. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the clinometer to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16966. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for controller, voltage, M1. (Packaging Instruction AFPS-137) 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of voltage controller M1, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17186. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for corrector, wind, sound ranging, M1, W/E. (Packaging Instruction AFPS-116, Rev. 1) 1945. 13 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the sound ranging wind corrector was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16934. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for desiccators for Ordnance fire control instruments. (Packaging Instruction AFPS-124-1) 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
This report contains procedure for the preparation and packaging of desiccator plugs, and was prepared under the direction of the Chief of Ordnance by Fire Control Sub-Office, Frankford Arsenal.

PB 17187. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for device, aim checking M1. (Packaging Instruction AFPS- 114) 1944. 9 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the M1 aim checking device to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17177. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for directors M8, M9 and M10. (Packaging Instruction AFPS-52) 1944. 42 p. Price: Microfilm - 50¢ - Photostat - $3.00
This instruction was prepared under the direction of the Chief of Ordnance by Fire Control Sub-Office , (Frankford Arsenal) for a fire control instrument which requires special packaging to prevent damage during shipment and storage. Diagrams and photographs.

PB 16975. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for finder range 80 cm, base, M1917. (Packaging Instruction AFPS-158). 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16979. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for finder range 1 meter base M1916. (Packaging Instruction AFPS - 154) 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17190. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for indicator assembly D63405 (sight computing M7). (Packaging Instruction AFPS-111). 1944. 16 p. Price: Microfilm - 50¢ - Photostat - $2.00
This instruction for packing the subject unit was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams.

PB 17184. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for indicator azimuth M9. (Packaging Instruction AFPS-75) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the azimuth indicator to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by Fire control Sub-Office, Frankford Arsenal. Diagrams and photographs.

PB 17169. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for indicator D44114. (Packaging Instruction AFPS-90) 1944. 15 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the indicator to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams are included.

PB 16968. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for instrument, azimuth, M2. (Packaging Instruction AFPS-138) 1944. 22 p. Price: Microfilm-50¢ - Photostat-$2.00
Instructions and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and drawing.

PB 16981. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for kit, helium filling M4A1. (Packaging Instruction AFPS-152) 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 16983. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for kit, helium filling M8. (Packaging Instruction AFPS-150) 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 16984. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for kit, repair instrument, M4. (Packaging Instruction AFPS-149) 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 16982. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for kit, repair optical for field artillery. (Packaging Instruction AFPS -151) 1944. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 16957. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for light instrument. (Packaging Instruction AFPS-132). 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
The instructions and packaging procedure for the light instrument have been prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16927. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope, M3A10, W/E. (Packaging Instruction AFPS-176). 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
The instructions and packaging procedure incorporated in this document were prepared for a telescope mount which requires special packaging to prevent damage during shipment and storage. Photographs. Prepared under the direction of the Chief of Ordnance by the Fire Control Sub Office, Frankford Arsenal.

PB 17176. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for Mt. telescope M3, complete with telescope panoramic M1 and instrument light M13. (Packaging Instruction AFPS-83) 1944. 15 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the panoramic telescope to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by Fire Control Sub-Office of Frankford Arsenal. Photographs and diagrams.

PB 17179. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope M18. (Packaging Instruction AFPS-80) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction was prepared under the direction of the Chief of Ordnance by Fire Control Sub-Office, Frankford Arsenal, for a fire control instrument which requires special packaging to prevent damage during shipment and storage. Illustrations.

PB 16931. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope M40 W/E. (Packaging Instruction AFPS-167) 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure incorporated in this document were prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal for a telescope mount which requires special packaging to prevent damage during shipment and storage. Photographs.

PB 16961. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope M41A1. (Packaging Instruction AFPS-118) 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of the subject item, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Drawing and photographs.

PB 17170. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope M41A2. (Packaging Instruction AFPS-89) 1944. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the subject item to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16960 U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope M50. (Packaging Instruction AFPS-119) 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of telescope mount, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17191. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope M52C and M52. (Packaging Instruction AFPS-110) 1944. 15 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams.

PB 17188. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope, M54, (Packaging Instruction AFPS-113) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the M54 telescope mount was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17167. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope M55 (M5). (Packaging Instruction AFPS-92) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the telescope mount to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 17168. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for Mount telescope M57 (T82). (Packaging Instruction AFPS-91) 1944. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the subject instrument to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16977. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope, M59, W/E. (Packaging Instruction AFPS-156-1). 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of mount, telescope, M9, W/E, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs are included.

PB 16964. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope M63 (T98). (Packaging Instruction AFPS-139) 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of subject telescope mount, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Drawing and photograph.

PB 16978. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount telescope M65. (Packaging Instruction AFPS-155) 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Drawing incl.

PB 16929. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope M71 (T124) W/E. (Packaging Instruction AFPS-169) 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure incorporated in this document were prepared for a telescope mount which requires special packaging to prevent damage during shipment and storage. Photographs and diagrams. Prepared under the direction of the Chief of Ordnance by the Fire Control Sub-office, Frankford Arsenal.

PB 16942. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope, T90. (Packaging Instruction AFPS-96). 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure incorporated in this document prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal, were for the T90 telescope mount which requires special packaging to prevent damage during shipment and storage.

PB 16930. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mount, telescope, T103, W/E. (Packaging Instruction AFPS-168). 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure incorporated in this document were prepared under direction of the Chief of Ordnance by the Fire Control Sub-Office Frankford Arsenal for a telescope mount which requires special packaging to prevent damage during shipment and storage. Photographs.

PB 16959. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for mounts, periscope, T106 W/E, T107 W/E, T110 W/E, T112 W/E, T113 W/E. (Packaging Instruction AFPS-130-1). 1945. 14 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for the shipment of subject instruments, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16958. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT Packaging instruction for periscope M10 series. (Packaging Instruction AFPS-121. rev. 1) 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of periscope M10 series, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17160. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for periscope T8. (Packaging Instruction AFPS-79) 1944. 18 p. Price: Microfilm - 50¢ - Photostat - $2.00
The instruction for packing this instrument to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by Fire Control Sub-Office, Frankford Arsenal. Illustrations consist of diagrams and photographs.

PB 16928. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for Ordnance watches and time recorders. (Packaging Instructions AFPS-170) 1945. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
The instructions and packaging procedure incorporated in this document were prepared for instruments which require special packing to prevent damage during shipment and storage. Prepared under the Direction of the Chief of Ordnance by the Fire Control Sub Office, Frankford Arsenal.

PB 16946. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for quadrant, elevation, T13E1, W/E. (Packaging Instruction AFPS-172) 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure included in this document prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal, were for an elevation quadrant which requires special packaging to prevent damage during shipment and storage. Photographs.

PB 16956. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for quadrant, gunner's M1 or M1918 W/E. (Packaging Instruction AFPS-123-1) 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure for quadrant, gunner's M1 or M1918 W/E have been prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16972. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for ring sights, for sights, computing M5, M6, M7, M7A1. (Packaging Instruction AFPS-141) 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of ring sights, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16991. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for setter, fuze, M14. (Packaging Instruction AFPS-142 rev.1.) 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16990. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for setters, fuse M22 and M23 W/E. (Packaging Instruction AFPS-143 rev 1.) 1945. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16963. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for sight, computing M7A1. (Packaging Instruction AFPS-140) 1944. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
Instructions and packaging procedure for shipment of the subject fire control instrument, prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Drawings and photographs.

PB 16986. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for sight computing, M14. (Packaging Instruction AFPS-147) 1944. 15 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs and drawings.

PB 16967. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for slide rule M1. (Packaging Instruction AFPS-136) 1944. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of slide rule M1, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16952. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT Packaging instruction for tables, firing graphical. (Packaging Instruction AFPS-127) 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for tables, firing graphical, prepared by the Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 16951. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT Packaging instruction for telescope, elbow M6A1. (Packaging Instruction AFPS-128) 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedures for shipment of telescope, elbow M6A1, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 17165. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope, elbow, M62, W/E. (Packaging Instruction AFPS-117-1) 1945. 18 p. Price: Microfilm - 50¢ - Photostat - $2.00
This instruction for the packing of the elbow telescope was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photographs and diagrams.

PB 17175. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope, B.C., M65 W/E. (Packaging Instruction AFPS-84, Rev. #1) 1945. 14 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for the packing of the telescope to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by Fire Control Sub-Office Frankford Arsenal. Diagrams and photographs illustrate the instruction.

PB 17181. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope B.C. M1917B4. (Packaging Instruction AFPS-78) 1944. 12 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing of the telescope to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16974. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope M53 W/case carrying M40. (Packaging Instruction AFPS-159) 1944. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16973. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope, M69C, W/E. (Packaging Instruction AFPS-161) 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16965. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT Packaging instruction for telescope M73B1. (Packaging Instruction AFPS-138) 1944. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of telescope M73B1, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 16932. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT Packaging instruction for telescope, T130E2, W/E. (Packaging Instruction AFPS-165) 1945. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
The instructions and packaging procedure incorporated in this document were prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal for a telescope which requires special packing to prevent damage during shipment and storage. Photographs.

PB 16976. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for telescope observation, French, 3 power, M1917. (Packaging Instruction AFPS-157) 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17173. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instructions for telescope panoramic M1. (Packaging Instruction AFPS-86) 1944. 11 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for packing the telescope to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office. Frankford Arsenal.

PB 16971. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for tester, stereoscopic, M1A1. (Packaging Instruction AFPS-129) 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16987. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for thermometer, powder temperature M1. (Packaging Instruction AFPS-146). 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal.

PB 16970. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for trainer, stereoscopic M7, (Packaging Instruction AFPS-131) 1944. 13 p. Price: Microfilm-50¢ - Photostat-$1.00
Instruction and packaging procedure for shipment of subject instrument, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photographs.

PB 16980. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for transmitters, azimuth M5, elevation M6. (Packaging Instruction AFPS-153) 1944. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Instructions and packaging procedure for shipment of subject equipment, prepared by Ordnance Department, Packaging Unit, Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17183. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for tripod type M15. (Packaging Instruction AFPS-76) 1944. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for the packing of a delicate instrument to prevent damage during shipment was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17182. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for tripod type "R". (Packaging Instruction AFPS-77) 1944. 10 p. Price: Microfilm - 50¢ - Photostat - $1.00
This instruction for the packing of the R tripod to prevent damage during shipment and storage was prepared under the direction of the Chief of Ordnance by the Fire Control Sub-Office, Frankford Arsenal. Photograph.

PB 17178. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Packaging instruction for unit, generating, M7. (Packaging instruction AFPS-81) 1944. 20 p. Price: Microfilm - 50¢ - Photostat - $2.00
This instruction for packing the M7 generating unit was prepared under direction of the Chief of Ordnance by Fire Control Sub-Office, Frankford Arsenal. Illustrations.

PB 16943. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Shipping container for cable, 3 conductor, 150 ft. long, with plug and receptacle, assembly (for main junction box, D43880, to generating unit) on reel (D43879). (WPL container 1005) 1943. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This shipping container was designed by M. F. Adams and G. L. Eckerli. The container was prepared under the direction of the Chief of Ordnance by the Forest Products Laboratory, Forest Service, Department of Agriculture, Madison, Wisconsin. Diagrams show details of the container.

PB 11071. U. S. WAR DEPARTMENT. ORDNANCE DEPARTMENT. Truck cargo, 4 ton, 6 x 6, Diamond T, short wheel base, Model 968 - soft top cab with winch. Export packing procedure. Single unit pack (S.U.P.). (O.P.C. Instructions 142). Jul 1944. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
Instructions are given for disassembling of the vehicle, corrosion preventive procedure and prepacking prior to crating. Six photographs illustrate the procedure to follow in placing the various parts in the crate, a seventh photograph shows the complete crate ready for shipment. For construction of the container there is a complete bill of material, a nailing schedule with two illustrations, and 22 assembly drawings.

TRANSPORTATION EQUIPMENT

AERONAUTICS

Aircraft

German

PB 8406. BERRY, J. R., JR. Use of the boundary layer in jet propulsion. (AAF ATSC Memo Rept TSEAL-2-8582-3-1). May 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Comments are made on a proposal to remove portions of the boundary layer from the surfaces of an airplane, and to use this air in a turbo-jet type engine. The proposal submitted contained a large number of fundamental errors due to the exclusion of several important factors. Appendix I is a discussion of these fallacies. Appendix II is a discussion of factors to be considered in contemplating a design to accomplish the use of boundary layer in jet propulsion. Such a redesign would add weight and might result in loss of engine thrust. It would involve a complete examination of the whole airplane design, taking into account increase in weight and size, actual reduction losses, possible reduction in drag that can be obtained in flight, and complete airfoil characteristics throughout the whole flight range.

PB 14634. BORNEMANN, K. Gewichtsermittlung von konstruktionsgruppen des flugwerks. (Weight determination of constructional units of an aircraft) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik II B 5). (ATSC Mission, Klotter File 11 B) May 1940. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
This report presents a method of determination and checking of the weight of constructional units of a plane exposed to aerodynamic stresses. As examples, the frame work and the body are used. The dependence of the weight of these units on the method of construction and size on one hand, and on required strength on the other hand, is shown by theoretical calculations and statistical data.

PB 7394. BRETSFORD, J. P. Inspection of Messerschmidt #110, at N. AF., Philadelphia, Pa. (AAF ATSC Memo Rept EXP-M-57-525-16). Mar 1941. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Visual inspection was made of a ME #110 airplane, which had been shot down and was considerably damaged on the bottom of the fuselage and nacelles. The two engines are incompletely identified. There is only one set of controls though the instrument panel is readily visible to the occupant of the rear cockpit. Fuel tanks are of fibre covered with several layers of rubber, with the outer cover in 2 sections, the top section lapping over the bottom. The tanks are held in a tubular frame in the wing roots by wide webb straps with a clearance of 2 inches between tanks and metal parts. The engine control system consists entirely of push and pull rods through bell cranks with very close fitting bearings. The oil tank, installed immediately behind the engine and high in the nacelle, had a trap to prevent overfilling. The coolant radiator, of the automative fin and flat tube type is mounted in the lower rear section of the wing, with a scoop located 42 inches back of the leading edge of the wing.

PB 16684. DAVIES, H. H. and HENDERSON, L. J. Report on the design of German aircraft hydraulic systems, fuel systems, fuel system components and accessories, and miscellaneous related units. (C.I.O.S. Item 5, 25 and 26. File No. XXXI-41). Aug 1945. 439 p. Price: Microfilm-$4.50 - Photostat-$30.00
This report gives a comprehensive survey of the subject material and special emphasis was placed on the features and products which appeared to be new in design, unique in construction or which might have application to devices currently under development in the U.S. There are six main parts and each has cross section assembly drawings and schematic diagrams where they are necessary. Performance and test specifications have been used when they were available. Operational and constructional features are explained for each item or system included in the report and the purpose for which it was manufactured is explained. Part I discusses the design trends in German aircraft hydraulic and fuel systems. Part II describes in detail the design of the Dornier DO-335 hydraulic, fuel and lube oil systems. Part III gives details of the hydraulic and fuel systems of the ME-262 and ME-410. Part IV gives the application and operation of the latest developments in hydraulic and fuel system accessories of twelve manufacturers. Part V shows cross-section assemblies, performance, and test specifications for the accessories covered in Part IV. Part VI covers some unclassified information on German aircraft industry and gives a list of names, locations, and personnel of aircraft parts suppliers, including type of products supplied. Some of the illustrations will not reproduce well.

PB 16783. EXPERIMENTAL INSTITUTION GRAF ZEPPELIN, STUTTGART-RUIT. Report on the research of the Knacke division. Jun 1945. 9 p. Price: Microfilm-50¢ - Photostat-$1.00
Knacke Division in the Research Institution Graf Zeppelin, under Th. Knacke, was working on parachutes and their uses especially the improvement and new applications of FIST-ribbon parachutes. This type free of swing and has small opening shock. Simular types were used as airplane brakes diving and landing brakes, salvage and safety parachutes for dropping instruments, etc. Special procedures for dropping supplies from a high plane had been worked out. It is possible to reef or open and close this type. A cargo glider can land in 1/7 the time with this technique. Manufacture and aerodynamic and static testing are treated, and also the research on the use of paper parachutes, because of the fabric shortage.

PB 17376. GERMANY. REICHSLUFTFAHRTMINISTERIUM. Normen.(Standards).(MIS VII 69r 22 7001092) 1943. 187 p. Price: Microfilm-$2.00 - Photostat-$13.00
This folder contains lists of standard specifications on hardware, machine parts, materials and semi-finished products which are of importance in building and operating aircraft. Specifications have been revised to April, 1943 for some items.

PB 16712. KELLEY, BARTRAM and MULVEY, H. J. Flettner helicopter FL 282 "Kolibri". (C.I.O.S. Item 25, File No. XXXI - 11). Aug 1945. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
A description of this German helicopter and performance characteristics are discussed. Design data is presented and detail drawings are included to show the control system, arrangement of the blade root attachments, hub shafts, gimbal rings and the control link between them. Two additional drawings show the upper transmission connecting the two hubs and the collective pitch linkage to the hubs as well as the pitch governor. The aircraft is a one - or two -place machine having two intermeshing two-blade rotors, tricycle gear, and substantial tail surfaces. Its gross weight is 2205 pounds and rotor diameter is 39.3 feet. There were 22 of them made and it was Germany's most developed helicopter. There are three photographs of the upper transmission and two showing the inboard end of the rotor blades with hinges and dampers, but there is no picture of the complete equipment.

PB 16862. LUDWIEG, H. Versuchsergebnisse Pfeilflugel bei hohen Geschwindigkeiten. (Tests results, arrow-head wings at high velocities). Translated by H. Dumbel. (AAF ATSC T-2 Translation 417). 15 p. Price: Microfilm-50¢ - Photostat-$1.00
Six model airplane wings with various sweep angles were tested in the wind tunnel at high velocities in order to test the resistance of each to compressibility shock. Test data was plotted on curves. A series of similar arrowhead wing models with N.A.C.A. 0012-64 profile were tested. Also the influence of fuselage and nacelles on the characteristics of a swept and an unswept wing was investigated. Reduced photostat of the original German investigation including curves is appended.

PB 16724. MAC LACHLAN and others. Messerschmitt Company's design and development department, Oberammergau, Bavaria. (CIOS Item 5, 25, 26 and 27. File No. XXX-49). 1945. 99 p. Price: Microfilm-$1.00 - Photostat-$7.00
This is a report on a visit to the subject department to determine the facilities and developments of German aviation science and engineering. It shows how Germany was ahead of the allies in certain respects and behind in others. The bulk of the information was secured by interrogation of plant personnel, and brief summaries of earlier interrogations are included in an appendix. There are also brief notes on other targets visited at Garmisch Partenkirchen, Kochel, and Munich. German success in supersonic flight, tailless aircraft, axial turbines, rocket motors, aerodynamic research equipment, swept-back wing, and the "Engine" type of anti-aircraft rockets is discussed. This is a British reporting team and the 19 reports in the appendix are the results of U. S. interrogations. Sketches and graphs illustrate the various sections.

PB 14964. OPPELT, W. Abfederung von flugzeugausrüstungsteilen gegen erschütterungen. (Elastic attachment of aircraft equipment against the effect of shocks) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik V E 2). (ALSOS Mission, Klotter File 11 E.) Jul 1937. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
The prevention of shock is particularly important in regard to panel instructions. This report makes the distinction between shocks due to engine operation and aerodynamic shocks. It discusses the proper selection of springs for elastic attachment of panel instruments and other parts that may be damaged by shock, and the general construction of shock mountings. Drawings and graphs. Bibliography. In German.

PB 14531. QUESSEL, W. Berechnung der kritischen Geschwindigkeit von Flugzeugflügeln (Zahlenbeispiel). Calculation of the critical speed of airplane - wings, carried out as an example). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik II A 1). (ALSOS Mission, Klotter File 11 B). May 7, 1937. 36 p. Price: Microfilm-50¢ - Photostat-$3.00
The example is carried out for symmetrical vibrations only and give formulas, curves and tabulations to facilitate such calculations for any other aircraft. Curves, tables and formulae are included. In German.

PB 14530. SCHAPITZ, E. Die Berechnung der festigkeit von dünnwandigen versteiften platten, trägern und schalen. (Calculation of the strength of thin-walled reinforcedplates, shells and girders). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik II A 2). (ALSOS Mission, Klotter File 11 B.) May 1938. 33 p. Price: Microfilm-50¢ Photostat-$3.00
The calculation of the strength of thin sheet constructions, the walls of which bulge out before the limit of their bearing strength is reached, requires a thorough knowledge of tension and deformations of thin sheets after they bulge out. This report deals with mechanical properties of thin-sheet constructions used in aircraft and results of stresses developed in them during flight. Formulas for the calculations of stresses are given. Graphs, tables and photos. Bibliography.

PB 16780. STÖCKEL. Seat installation with steering gear for high flight accelerations. (A translation from the German) (German Aviation Research Rept 1549). 23 p.
Price: Microfilm-50¢ - Photostat-$2.00
Study on the development of a seat to be swung from normal to the prone back position with easily controlled apparatus for use in dive bombing and in high speed altitude flight to prevent "blackout". Take-off, landing and normal flight occurred in normal position, curvilinear flight in space in dorsal position. The latter provides good vision in curvilinear flight and in recovery from diving, and standing in dorsal position when diving proved physiologically favorable, when flight tested in a JU-87 airplane. Pictures of the seat referred to in the text are not included in the report, but a clear description is given.

PB 14539. TONSKI, A. Viergurtige Raumfachwerke (Quadrilateral structures) Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik II A 11. (ALSOS Mission, Klotter File 11 B). May 1940. 37 p. Price: Microfilm-50¢ - Photostat-$3.00
The report analyses the stresses in airplanes using quadrilateral framework structures and gives formulas and tabulations to simplify the claculation of such structures.

PB 16861. U. S. ARMY AIR FORCES. AIR TECHNICAL SERVICE COMMAND. FW 190 BMW 801 pursuit airplanes. (T-2 translation 406). n.d. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This report gives modifications in tabular form of the following German aircraft: A-6; A-7; A-8; A-9; F-3; F-8; F-9; F-8; G-3; G-8; F-8/U2; F-8/9/R13; F-8/9/R14; F-8/9/R15; D-9; D-11; D-12/R11; D-13/R11; E-0; E-1; G-1; G-3; S-1; E-1; E-10; and E-8.
Further developments in production are also listed for certain of these.

PB 17544. WIEMILLER, H. E. and MEINERS, H. F. Focke-Achgelis rotary wing kite (Division of Weser Flugzeugbau (FIAT Final Report 176). 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The FA-330 is a three-bladed rotating wing type kite operating on the autogiro principle and providing an elevated observation platform for one man. The model described in this report was made for towing from a submarine deck to which it is attached by a steel cable working from a winch on the submarine. Photographs and drawings are appended.

Japanese

PB 16811. BROWN, S. W. Armor of Japanese airplanes. (AAF. Air Tech Intelligence Group Rept 26). Oct 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of Maj. Koinumaru on Japanese steel research to develop special steels for armor and to discover new heat treatments and surface hardening methods. Table of composition of Japanese armor plate, and table and drawings of its installation on airplanes are included.

PB 16801. BROWN, S. W. Japanese aerodynamic research and research equipment. (AAF. Air Tech Intelligence Group Rept 40). Nov 1945. 18 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of Japanese scientists on the organization of the Central Aeronautical Research Institute, location of wind tunnels and towing basins. Investigations are listed on compressibility effects and laminar flow airfoils and a report on airfoil sections and allied problems is appended. Appendix A describes and locates research equipment and gives its characteristics.

PB 16820. BROWN, S. W. Japanese pressurized cabin design. (AAF. Air Tech Intelligence Group Rept 17). Oct 19, 1945. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of Prof. Ogawa and others on pressurized cabin design and testing for the Japanese Army Air Forces. Small sketches of parts are included, also a bibliography of 9 research reports on this subject from the Aeronautical Research Institute of Tokyo Imperial University.

PB 16824. BROWN, S. W. Structural requirements and techniques used in design of Japanese aircraft. (AAF. Air Tech Intelligence Group Rept 13). Oct 1945. 8 p.
Price: Microfilm-50¢ - Photostat-$1.00
This interrogation of Comdr. Otsuki of the Japanese Navy gives design strength requirements for airframes, limit load factors, safety factors, design altitudes in stress analysis, compressibility corrections, spanwise and chordwise lift distribution, roll, pitch and yaw, gust conditions, special fatigue factors, and ground loads. Pilot effort for purposes of control, static testing, fatigue test of wings and a special drop test jig are also included.

PB 16827. BROWN, S. W. Vibration and flutter methods employed by the Japanese. (AAF. Air Tech Intelligence Group Rept 10). Oct 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of Prof. Yamamoto on methods of testing and determing frequency of vibration. His ordinary practice in calculations was two dimensional, two degrees of freedom calculations after the manner of Theodorsen. Flutter calculations are made without mechanical analyzers, and he had no automatic recording equipment capable of indicating stresses at various stations. Static testing for loads was the same as that used for wings in United States. He had investigated best types of wood for wooden aircraft, and also the slip coefficient of rivets and spot welds.

PB 16807. DEIBEL, R. F. Control systems for pilotless aircraft (Japanese). (AAF Air Tech Intelligence Group Rept 32) Nov 1945. 3 p. Price: Microfilm - 50¢ - Photostat - $1.00
INTERROGAT
Interrogation of Japanese engineers on the radio controlled I-Go 3 flying missiles. It included the most elementary radio and auto-pilot control system, but is the only Japanese flyable pilotless missile. Weight, and course under mother plane stick guidance is sketched, but a more complete report including functional and circuit diagrams will be prepared later.

PB 16806. HELMICK, P. E. Certain reports of aeronautical research done by Prof. Tomijiro Moriya, of Tokyo Imperial University. (AAF Tech Intelligence Group Rept 33). Nov 1945. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
A report on the inspection of equipment, research facilities and type of work done in recent years at the aeronautical research laboratories. Considerable propeller research was done here. There were 2 moderate size wind tunnels, and a small towing basin for hull research. A complete and modern tunnel for testing of propellers was found here also. The technical library had many recent American and British works including N.A.C.A. reports as late as 1943. Translations of Prof. Moriya's papers are listed but not included. This report gives no useful data.

PB 16816. HELMICK, PAUL F. Report of interview with prominent Japanese aircraft design engineers. (AAF Air Tech Intelligence Group Rept 21). Oct 1945. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
Japanese aircraft types and designs of the Mitsubishi Co., Tachikawa, Kawasaki Co., were discussed with their designing engineers. It was recommended that certain experimental aircraft and equipment be investigated further, including a radio controlled jet propelled glide bomb to be used against ships.

PB 16819. KIERGAN, M. B. Aircraft hydraulic systems. (Japanese). (AAF. Air Tech Intelligence Group Rept 18). Oct 1945. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of Takeo Doi, chief engineer of Kawasaki Aircraft Co. covered the problems of leakage and packing problems, power source, standard mineral fluids and the equipment which was hydraulically operated. Soy-bean oil or rapeseed oil added to hydraulic control oil reduced the swelling rate of rubber parts to half. Silk packings soaked in polyvinyl alcohol and metapecryl resin had good quality.

PB 16818. KIERGAN, M. B. Summary of information on Japanese catapults and arresting gear. (AAF. Air Tech Intelligence Group Rept 19). Oct 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Conclusions resulting from inspection of available material, and information from ATIC Reports, 5, 7, 8 and 9, on outstanding design features and weaknesses of Japanese catapults and arresting gear.

PB 16809. PENNOYER, F. W. Current aircraft production for the Japanese navy. (Army Air Forces. Air Tech Intelligence Group Rept 30). Nov 1945. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of Capt. Miyakawa, Chief of Section of the Japanese Air Services Bureau, which corresponds to the Bureau of Aeronautics. Aircraft production planning factors, service life of combat aircraft, effects of bombing, and deteriorating workmanship were discussed.

PB 16810. SPANGLER, S. B. Aircraft design and development. (Japanese). (AAF. Air Tech Intelligence Group Rept 27). Nov 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Report of first visit to First Naval Air Technical Arsenal, Yokosuka, which was responsible for controlling or carrying on all aspects of research, design, development and test of naval aviation material. Only unusual developments found were Oka 43 and Shinden (an experimental pusher VF). Modifications of plane designs and development of cheap suicide weapons such as Oka 11 with solid fuel rocket propellant, Oka 22 engine rocket, and Oka 30 series, which were launched from planes, are outlined.

PB 16821. SPANGLER, S. B. Future production plans and military requirements for aircraft for the Japanese navy. (AAF. Air Tech Intelligence Group Rept. 16). Oct 1945. 23 p. Price: Microfilm-50¢ - Photostat-$2.00
Interrogation of Capt. Terai on production plans for all types of Japanese Navy aircraft in the numbers and at the plants noted in Appendix A. Detailed information on different purpose aircraft and some comparison between Japanese and American practice in design, use and accessory development is noted. The report covers a variety of general material on military aircraft and their use by the Japanese.

United States

PB 16259. BERRE, H. Failure of landing gear actuating cables, B-12AM airplane. (AAF Rept Eng Sect U-EXP-M-51-4878). May 19, 1941. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Unsatisfactory Report on the failure of a B-12AM airplane landing gear lowering cable and retracting cable. Failure of both of them at the same time is of a singular nature. A distinct snap heard during retraction of the landing gears during take-off indicates that the landing gear lowering cable failed then. Landing gear retracting cable may have failed as a result of the landing gear hanging loose in the lowered position and swinging in the wind, thus causing shock loads on the system. This is considered an isolated case.

PB 16577. BERKE, HAROLD. Test of combination of AN and 811 type hydraulic fittings on tubing assemblies. (AAF. Materiel Center. Memo Rept EXP-M-51/AD1058, Addendum 3.) Nov 1942. 29 p. Price: Microfilm-50¢ - Photostat-$2.00
Report of tests to determine the satisfactoriness of various material tubing assemblies made up from combinations of AN and 811 type hydraulic fittings for aircraft. The advent of the AN (Army-Navy) specifications for hydraulic fittings brought up the possibility of mixing AN with AAF standard sheet 811 fittings during assembly. The report tabulates approved combinations of these types. Appendix contains test methods, tables, and diagrams. (Some of the pages will photograph poorly).

PB 7375. COURSEN, L. V. Slow motion study of 47-inch tires in landing a B-26 airplane. (AAF ATSC Memo Rept EXP-M-56-3948, Add. 1). Sep 1941. 1 p. Price: Microfilm-50¢ - Photostat-$1.00
Slow motion study of a 10 ply cotton tire, taken from slightly above and at an angle of approximately 53 degrees to the axis of the wheel, during 4 landings on concrete runways. Time interval of each filming was accurately measured and

recorded, so that data on the number of frames per second is available. Data is now available on (1) Magnitude of tire deflection and distortion upon landing (2) Acceleration of the wheel on landing (3) Direction and magnitude of the force in the reaction of the tire to the landing surface. Further photographic records at an angle of 90° are being made. No data is presented in this report.

PB 6465. DEUTSCH, M. L. Status of the problem of oscillations in Rotary Wing Aircraft. (AAF Expt Eng Sect EXP-M-51/VF42). Jun 1942. 21 p. Price: Microfilm-50¢ - Photostat-$1.00
Instigation of a theoretical and experimental analysis of the problem of oscillations in rotary wing aircraft was undertaken by the Materiel Center, N.A.C.A. and representatives of the industry after the vibration failure of the XR-3 autogiro. The physical theory of the mechanical instability of rotary wing aircraft, as worked out by Mr. Coleman of N.A.C.A. was tested on the Kellet Co. model pylon. Two kinds of oscillation, apparently separate and distinct, were observed. In the first, as the motor was 'revved up' the hub was oscillating at a frequency close to the motor r.p.m. In the second type of oscillation, the frequency of the blades pluse the frequency of the hub is very nearly equal to the motor r.p.m. The Coleman theory was set up for isotropic spring restraint, then N.A.C.A. made a brief theoretical analysis for anisotropic spring restraint. A tentative technique for obtaining the parameters has been developed. Recommendation is made that a model be made on which the theoretical analysis can be checked from an engineering point of view. Appendix I is a resume of the theory of the mechanical instability of rotors as developed by Mr. H. P. Coleman of N.A.C.A., with curves plotted. Appendix II contains photograph and description of the Kellett model pylon for testing and Appendix III is a discussion of the parameters with data obtained from the model at the Kellet plant.

PB 16258. GRANT, D. Types of hydraulic fluids used in YP-43 airplanes. (AAF Expt Eng Sect U-EXP-M-51-4894). Jun 1941. 3 p. Price: Microfilm-50¢ - Photostat-$1.00
Unsatisfactory Report on condition that requires no. 3580 hydraulic fluid in the main hydraulic system and landing gear shock struts, and Specification no. 3586 hydraulic fluid in the brake system and tail wheel shock strut. This causes confusion in maintenance and has resulted in gumming of the fluids and deterioration of the packings and other rubber or synthetic parts. New general specification for the installation of hydraulic systems in aircraft requires that landing gear retracting mechanisms, wing flaps, bomb bay doors, cowl flaps, hydraulic brakes, etc. be designed for use with no. 3580 hydraulic fluid. When natural rubber packing cups are used in brakes, the brake system must be serviced with no. 3586 fluid. Confusion will be somewhat alleviated by a T. O. revision, calling for installation of instruction plates and tags specifying the type of fluid in the different units.

PB 16260. HORST, C. O. Accidental tripping of bombadiers compartment trap door release cables, B-10B airplane. (AAF. Expt Eng Sect U-EXP-M-51-4731). Mar 19, 1941. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
As a result of the accidental release of the trap door release cable installation in the bombardier's compartment, a study has been made of the accident. Guards have been designed to prevent such accidental release. Drawings have been made and guards should be installed on B-10 and B-12 series airplanes as soon as possible. There are no drawings included in this report.

PB 17227. HUSS, H. O. Tests of spray tank M10 mounted on P-63 airplane. (Chemical Warfare Service. Technical Division Memorandum Report, T.D.M.R. 910). 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
Five spray tests were conducted with M10 spray tanks mounted on the P-63 airplane, one on each wing and one under the fuselage. No contamination of any kind was experienced during these tests. The ground clearance for the wing tank installation was 15 in. and for the fuselage installation, using an M2 adopter, 6 in. When mounted under the fuselage the spray tank cleared the nose which, while the latter was being retracted, by 3-3/16 in. Photographs, tables.

PB 15639. JOHNSTONE, H. F. and GOGLIA, M. J. The development of an exhaust smoke generator for military aircraft. July 20, 1945. (OSRD Rept 5488). Aug 1945. 80 p. Price: Microfilm-$1.00 - Photostat-$4.00
Progress report on development of smoke generator for military aircraft utilising the heat from the engine exhaust to vaporize the fog oil. Oil in droplets below 100 microns is evaporated, then issues from the stack and is chilled immediately by the air to form screening smoke. Units are easy to install and remove from a plane, and do not noticeably affect the stability of the airplane. Comparative tests made of this equipment and the FS generators. Recommendations are made for further development to provide additional heat for vaporizing the oil and for increasing the capacity of the oil exhaust smoke generator. Photographs, tables and graphs are included.

PB 8162. LOCKE, F. W. S., JR. A study of a high speed gas turbine powered flying boat for radar research. (NAVAER AER Rept R-46). Jul 1945. 36 p. Price: Microfilm - Photostat-$3.00
This report presents the results of a preliminary design study undertaken by this branch to determine the performance possibilities of a flying boat powered with 4 Westinghouse 19B turbines. The combat radius was 1080 miles at 300 miles per hour at 35,000 feet. This altitude is too high for most practical operation. The desired high performance at lower practical altitudes can be obtained by using a higher wing loading and perhaps a higher power loading. Spray studies of models of much higher length beam ratios should be initiated. A group weight chart and graphs on maximum speed and climb, flying qualities, causing speed, range optimum cruising performance, and sighting moments of wing tip floats, are included. Bibliography of 19 items is included

PB 8151. LOCKE, F. W. S. JR. Note on the development of a rough water test program for N.A.C.A. tests of A.B.I. No. 22, class VPB airplane. (NAVAER AER Rept R-8). Apr 1945. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The test program proposed is to be used for the development of an ocean-going flying boat able to withstand rough water conditions encountered with fleet operations. Spray and damping characteristics of such a flying-boat are the chief considerations of this report and test conditions to simulate these factors are a necessary part in such a development testing apparatus. Basic and dynamic models are proposed for the tests and data on the chine flare of hulls is presented. One drawing gives fairing measurements.

PB 17304. LOTT, H. E. Installation tests of spray tanks M33A1 and M10 on A-26B airplane. (Chemical Warfare Service. Tech. Div. Memo. Rept. 935). 1944. 17 p. Price: Microfilm-50¢ - Photostat-$2.00
The object of the work reported herein was to make an installation of M10 spray tanks on the wing bomb racks of, and an installation of two M33A1 airplane spray tanks in the bomb bay of, an A-26B airplane, and to determine the extent of contamination of the airplane, if any, when with the airplane in flight the chemical agent was released from the spray tanks so mounted. The method of loading the tanks and the results of test flights are described. There was no contamination of the airplane. Photographs and a drawing illustrate the installation and flight tests.

PB 17244. LOTT, H. E. Tests of spray tanks M10 and M[illegible] on P-38L airplane. (Chemical Warfare Service. T.D.M.R. 998). 1945. 26 p. Price: Microfilm-50¢ - Photostat-$2.00
This report gives the results of tests made of installations of the possible combinations of airplane spray tanks M10 and M33 and 165 gallon droppable fuel tanks that can be carried on the bomb racks of the P38-L airplane, and determined the extent of contamination of the airplane that resulted from the use of chemicals in the spray tanks. A summary of the results of each test and photographs of each installation are given. The reduction in speed encountered in each installation is tabulated.

PB 17309. LOTT, H. E. and others. Development of closure plates for the discharge and vent lines of airplane smoke tanks. (Chemical Warfare Service. Tech Div Memo Rept. 980). 1944. 34 p. Price: Microfilm-50¢ - Photostat-$3.00
The history of the development of closure plates of various types, including flat glass plastic, and molded pyrex glass is given in this report. The results of experiments with the different materials are given. Types of detonators, gasits, and chemical agents are listed. Tests for frangibility, chemical reaction and closure plate strength were made. A discussion of retainer clips for the detonaters is presented. The pyrex glass closure plates were finally chosen as the best type for large smoke tanks. Flat glass closure plates are best for the vent line in the M10 smoke tank. Drawings illustrate the closure plates, retainers, and detonators considered.

PB 16225. LUSK, R. J. Consolidated-Vultee Aircraft Corporation Drawing No. 32R4036, Proposal - Electric basic load network, B-24 airplane. (AAF ATSC Memo Rept ENG-54-656-937.) Dec 1943. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
Discussion of the characteristics of a proposed basic load network for the B-24 airplane which will supply an uninterrupted flow of power sources to power consuming equipment regardless of faults or open circuits. This network includes conductors, junctions and junction boxes through which the load current may pass from or to the different items of electrical equipment. Modification of the Consolidated Vultee plan is requested to include a third parallel conductor to the wing sections of the proposed network and to remove provisions for fuse links from the network, and to use junction boxes and junction locations. Electrical diagrams show the general arrangement of the network.

PB 10289. OLMSTEAD, LEONARD M. A. C. System fuse study. Dec. 4, 1945. (Army Air Forces. Air Technical Service Command. Engineering Division. TSEPE-656-669BJ). 1945. 48 p. Price: Microfilm-50¢ - Photostat-$4.00
This report records the results of calculations and laboratory tests on the A. C. system mock-up for the XB-36 aircraft to determine the ability of the protective system to clear short-circuit currents by isolating the fault to the smallest possible component of the system. The A. C. system analyzed is that proposed by the Consolidated-Vultee Aircraft Corporation for the XB-36 airplane as shown by drawing in Appendix I. Tables, photographs and graphs accompany the report. Much of the discussion in this report may not reproduce well.

PB 16304. PARROT, K. K. Factors affecting ditching. (Army Air Forces. TSEEA-2-1235). 1946. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
This report deals with the possibility of incorporating more favorable design features in landplanes as an aid to ditching procedures on water. Such considerations must necessarily be secondary to performance characteristics. The training of flight personnel, a consideration of sea and weather conditions, and types of airplane design are investigated. The location of ditching aids and emergency exits are discussed, and landing speeds are considered as important factors.

PB 9730. TITTLER, H. H. Weight reduction of the B-24 airplane. (AAF ATSC Memo Rept ENG-51/4263-18. Add 5). Jul 1943. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
This is a report of the results of a study of weight saving in the B-24 airplane that could be affected by substituting magnesium alloy for dural castings. Present dural castings have an ultimate tensile strength of 32,000 psi. Heat treated magnesium alloy sand castings have ultimate tensile strength up to 34,000 psi permitting direct substitution with no reduction in the margins of safety. Appendix I lists fittings, both sand castings and forgings. Drawings are missing.

PB 16296. TRABER, H. K. Cracking of airspeed tube, Fairing No. 63-66408-BT-15 airplane. (AAF Expt Eng Sect U-EXP-M-51-4940). Jun 19, 1941. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Unsatisfactory Report on cracking of airspeed tube fairings at the lower inside attachment screw hole. The contractor has revised the fairing to incorporate certain reinforcements and anti-vibration grommets which it is considered will eliminate cracking of the farings. Materiel Laboratory recommends installation of revised fairings and grommets.

PB 16287. TRABER, H. K. Tail wheel control quadrant assy. No. 36-46009-BT-15 airplane. (AAF Expt Eng Sect U-EXP-M-51-4912). Jun 19, 1941. 2 p. Price: Microfilm-50¢ - Photostat-$1.00
Unsatisfactory Reports state that tail wheel control cable slips out of tail wheel quadrant assembly when right or left rudder is applied. This action results in bending and pinching of the rudder cable. This condition may be due to failure, distortion, or misalignment of some part or parts of the tail wheel installation, or to insufficient tension of the tail wheel control cable. It is recommended that inspection be made of the airplanes for the conditions listed, and that tension of tail wheel control cable be measured.

Instruments

PB 16808. DIEVEL, R. F. Aircraft instruments, part II. (Japanese). (AAF. Air Tech Intelligence Group Rept 31). Nov 1945. 4 p. Price: Microfilm-50¢ - Photostat-$1.00
Interrogation of Japanese Naval officers on aircraft instrument problems and production brought out their critical shortage. Attempts at Army Navy cooperation were under way. Beryllium copper step and end bearings were developed but only jewels could be used for precision laboratory instruments. Research on wax sealing of instruments and an optical altimeter had been abandoned. There was a critical shortage of navigation instruments.

PB 16846. U. S. ARMY AIR FORCES. AIR TECHNICAL SERVICE COMMAND. Damping gyro 127-239, with casing for damping gyro 127-329. (T-2 Translation 405). n.d. 7 p. Price: Microfilm-50¢ - Photostat-$1.00
The damping gyro reacts to the rotative speed of the airplane. It serves as a directional device within a directional control installation and delivers a control current proportional to the rotative speed of the airplane. This current is switched to the servomotor by way of a converter and counteracts the deflection. By this procedure the rotative speed of the airplane becomes periodically dampened to a lesser or greater extent. A general description of the construction installation and operation of the gyro makes up the bulk of the report on this German instrument. All six illustrations listed are missing.

Engines and Propellers

German

PB 14615. REESINGER, W. D. Berchnung und gestaltung der ventilsteurung von flugzeugmotoren (Calculation and shape of the valve gear in aircraft engines). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A 5). (ALSOS Mission, Klotter File 11 C). Dec 1937. 12 p. Price: Microfilm-50¢ - Photostat-$1.00
The report contains the formulae required for the calculation of the cams and includes general information about the design of the valve gear. Graphs, drawings and photographs are included. In German.

PB 14618. REESINGER, W. D. Die aussichten der schiebesteurungen für flugzeugmotore (The expectations for sleeve valve gears in aircraft engines). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A 2). (ALSOS Mission, Klotter File 11 C). Aug 1937. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
The study explains the merits and disadvantages of the different systems of the sleeve valve gears and stipulates the requirements for a dependable seal of the sleeve valve with low friction. In German.

PB 14606. BUCHMANN, G. Gestaltung der verkleidung von sternflugmotoren. (Construction of cowlings for radial aircraft engines) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A 14.) (ALSOS Mission, Klotter File 11 C) Sep 1938. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
This paper develops a method for evaluating the qualities of a motor casing by the increase of the temperature of the air used for cooling a radial aircraft motor. Results of the described experiments are used as a basis for the design of adequate casings for such engines.

PB 14563. CHRISTIAN, M. and JOERES, H. Kurbelgehäuse für luftgekühlte Reihenflugmotoren. (Crankcase for air cooled aircraft in-line motors) (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A 17). (ALSOS Mission, Klotter File 11 C) Dec 1939. 6 p. Price: Microfilm-50¢ - Photostat-$1.00
This report describes the principles for the design of crankcases for air cooled aviation motors and discusses the most successful models. It contains a stress analysis of crankcases and shows the way to avoid some points of peak tension in their construction. Drawings and photographs

PB 14565. GILBERT, E. and STEINER, R. Gleitlagerbelastungen in flugmotoren und lagerprufung. (Stresses in and testing of aircraft motor slide bearings). (Reichsluftfahrttechnik III A 15) (ALSOS Mission, Klotter File 11 C) Nov 1938. 11 p. Price: Microfilm-50¢ - Photostat-$1.00
This report deals with various methods by which slide bearings can be rated and with tests of their endurance values under conditions simulating their work in an aircraft motor. Graphic and mathematical methods for the determination of stresses in such bearings are given and methods for the determination of expected behavior of such bearings in the motor are discussed. Graphs and tables. Bibliography.

PB 7839. GREENE, WILLIAM L. Interrogation of Dr. Alexander Lippisch Regarding Design and Development of the Athodyd Form of Jet Propulsion Engine (Lorin Triebwerk). (AAF Tech Intelligence Rept I-82). July 1945. 5 p. Price: Microfilm-50¢ - Photostat-$1.00
Dr. Lippisch believes that for high speed flight within the atmosphere, the athodyd was the best form of propulsion at speeds in excess of M = 1, 0, and the gas turbine jet is useful only in a narrow range of speeds, below sonic velocities. Athodyds fall into two main classifications, according to the type of diffuser used. The Fang (catch) type has a diffuser with a true airfoil around the periphery of the leading edge of its opening, which results in a contraction in front of the athodyd, of the stream flowing into it. The Einhauf type of diffusion has a relatively sharp leading edge and the diffusing process takes place inside the tube proper. Dr. Lippisch's mathematical calculations in his athodyd design work are given. They are for incompressible flow in the sub sonic region only. He prefers solid fuels that have good gas producing qualities, and was designing his P-13 B for solid fuel.

PB 14613. KAPFUS, P. Vergleich der zylinderanordnung bei flugmotoren in X- und H- form (Comparison of the arrangement of aircraft engines in X- and H- form). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A 7). (ALSOS Mission, Klotter File 11 D). Feb 1938. 10 p. Price: Microfilm-50¢ - Photostat-$1.00
The study refers to liquid-cooled engines for fighter-planes in particular and compares the weight, resistance-area and basic construction of the two types of engines. Drawings illustrate the text which is in German.

PB 14562. KOLLMANN, K. Beitrag zur Entwicklung des Apparateteiles flussigkeitsgekuhlter Reihenflugmotoren (Contribution for the development of accessory drives on liquid cooled in-line aircraft engines). Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik III A 18). (ALSOS Mission, Klotter File 11 C). Apr 1940. 16 p. Price: Microfilm-50¢ - Photostat-$2.00
The report shows different arrangements for installation of accessories and their drives and makes recommendation for certain standardisations. Photographs and diagrams included in text. In German.

PB 16845. KRAUSE, WALTER and GUMPERT, BRUNO. Informative report on improvements in control of turbo-jet engines (AAF ATSC T - 2 Translation 402). Jun 1945. 8 p. Price: Microfilm-50¢ - Photostat-$1.00
Two German engineers explain the main difficulties the Germans experienced with the controls of the turbo-jet engine. A small improved apparatus of the thrust nozzle control was in production. It was a valve for keeping the fuel-air mixture within permissible limits for operations near the ground and had a regulator adjustment for altitude use. A plan for total control for turbo-jet power plants is suggested. The component parts are mentioned in the text, but there are no photographs or figures included with the report.

PB 16295. LUSH, M. J. and AHERN, R. I. Altitude calibration on German Junkers Jumo 205-C Diesel aircraft engine Serial No. 17300. (Army Air Forces. Engineering Division TSEPL-5-505-12). 1945. 126 p. Price: Microfilm-$1.00 - Photostat-$9.00
Although the altitude calibration tests were not completed due to failure of the friction clutch on the impeller shaft, certain data was obtained and reported. It was concluded that altitude characteristics are unfavorable as far as specific fuel consumption and specific weight (horsepower per pound) are concerned. Over 10,000 feet the powerless compared with the four stroke gasoline spark ignition engine. Operation at 20,000 feet at 1800 rpm. was unstable. Smoky exhaust characteristics were noted. At low altitudes fuel consumption was relatively low, and for the most part very smooth operating characteristics were observed. The report gives test procedure, log of test, discussion of test, pertinent dimensions and information relating to cylinders, pistons, main and connecting rod bearings. It also describes the air induction system, propeller shaft assembly, coolant system and lubrication system. The test stand and engine set-up are shown in photographs as are the component parts of the engine after a teardown examination. Graphs of test performance are included and drawings illustrate design details. One page (p. 15), giving a brief description of the fuel system, is missing.

PB 16009. MEYER, J. Die kopplung der luftschraubenbiegeschwingungen mit den kurbelwellen-drehschwingungen (The coupling of the flexural vibrations of the aircraft propeller with the torsional vibrations of the crankshaft). (Reichsluftfahrtministerium, Ringbuch der Luftfahrttechnik IV A 5). (ALSOS Mission, Klotter File 11 D). Apr 1938. 20 p. Price: Microfilm-50¢ - Photostat-$2.00
The problem is mathematically solved after substituting the propeller blade by an homogeneous prismatic bar. Experiments have shown that the real propeller behaves very much like an homogeneous bar as far as the natural oscillation is concerned. The text is supplemented with graphs, drawings and photographs. In German.

PB 7792. VON KARMAN, THEODORE and WATTENDORF, FRANK L. German free piston engine from Brunswick-Volkenrode. (AAF Tech Intelligence Rept I-5). May 1945. 3 p. Price
A new type of free piston engine developed by Prof. Otto Lutz of the Goering Institute of Aeronautical Research at Brunswick-Volkenrode is described. The engine utilizes floating pistons, which, instead of driving connecting rods and crankshafts, generate compressed and heated gases by reciprocating to and from between cushions of charged air, with combustion taking place at the time of maximum compression of each charge. The products of combustion are then available either to pass directly through a discharge nozzle, furnishing jet propulsion, or they may pass through a turbine, and generate power for driving a propeller or ducted fan. The new engine is essentially lighter in weight and smaller in bulk than previous developments, since a series of piston rotate and oscillate within a torus-shaped housing. A photograph of the engine is included.

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